The Dental Digest.

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Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

By J. N. Crouse, D. D. S., Chicago.

[*Continued from page 6, No. 1. Vol. 1.*]

In our article in the first number of the Dental Digest we described the qualifications a dentist should possess, enumerated very briefly the requirements of an office outfit, and mentioned reasons why the duties of a dentist required greater and more varied ability than any other occupation in life. As we proceed we shall try to show more fully why this is so and why his compensation should be greater.

In order to have your services appreciated, you must know yourself that they have been properly performed, and you must give to them the proper value. If you have the ability to render good service as a dentist, this ability must have cost a great outlay of time and money, and according to the law of compensation it should be paid for in accordance with the effort made. Besides the time, effort, and expense necessary to acquire a professional training, to conduct a dental practice successfully requires constant painstaking effort. You should go to your patient with neat and clean attire, and you should be in the best possible condition physically. The first, that your patient, because of your absolute neatness both in person and everything connected with the office, will be favorably impressed. The second, that your physical condition being good, you are able to think and reason correctly and thus give your best judgment in the many difficult problems which

present themselves in everyday practice. Moreover, feeling well, it will be much less effort to keep an even temper, a faculty which is of the greatest value; once give way to your temper and you are almost sure to lose control of an unruly patient—be it child or adult—if you do not lose the patient as well. Unless a practitioner can govern himself he cannot expect to control his patients.

Probably no part of a dental operation is so dreaded as the preparation of sensitive teeth for filling, and anything that can be done to lessen this suffering is the duty of a dentist. The dam is often a great aid. Let us see how we can adjust it with the least discomfort to the patient.

First, have every tooth absolutely clean. To insure this a little "Eucalyptus Extract" is of the greatest aid. Second, how to adjust the dam. When it is not desired to include the last molar, all that is required, as a general rule, after punching the holes which should be far enough apart to not obstruct circulation in the gums between the teeth, is to force the dam between the teeth, which can readily be done with waxed thread, or better, with floss silk, by the assistant, while the operator draws the dam over each tooth.

The adjusting is much of the time made unnecessarily unpleasant by the use of ligatures, or clamps. Where teeth are close together nothing is needed to hold the dam; but when they are not, something is required. What is the common practice? To tie a ligature tightly around the neck of the tooth. This should be stricken from the list of helps as being injurious to the periosteum, often creating enough periostitis to make the condensing of a gold filling a serious ordeal to the patient. We will qualify our statement with one exception, viz., when the teeth are extremely close together so that it is very difficult to get the dam between them by the method just described. In such cases tie two white beads, white being preferred as they are more readily seen, to a ligature about half an inch apart, and pass this ligature around the tooth twice, the second lap going between the beads and gum. Two or more of these beads can be tied around as many teeth as is desired before the dam is adjusted, and used to assist in getting it in place, the ends of each ligature being brought through the hole in the dam for that particular tooth. In this way we have a white bead on either side of the tooth. The dam can then be stretched over

the tooth and held by the two beads on either side, which are of great aid in getting it properly adjusted. If the method described is observed, the ligature need not be forced under the gum or in any way disturb the periosteum. After the dam is adjusted the ligature with beads can be removed if desired.

This method of holding the dam may not be new to many, nor often needed, but it was one of our great helps twenty years ago, and is yet of value at times. It is not given here as anything new, but will be of great service to younger practitioners who may not as yet have become expert in the use of the dam. Although clamps have taken the place which the beads often filled before these instruments of torture, viz., clamps, came into use, we do not wish to be understood as condemning them in toto, but simply say that they are used much more frequently than they should be. Crowding a clamp over a tooth and keeping it there long enough to perform a difficult operation is neither humane nor wise, because there are methods which accomplish the same results, but have not the objectionable features that go with the clamp.

The best plan for adjusting the dam is the third method and the last that we shall speak of. It is not a new method, but has been very useful to us for twenty years—the use of spunk and sandarac varnish. With the surface of the tooth absolutely clean and well dried, spunk can be made to stick and to hold the dam against almost any force that is ever applied. The varnish should always be quite thick, say as thick as stiff molasses, and two or more bottles should be prepared and ready for use so if one is either too thick or too thin, the other may be just right, a very important item.

When the dam is to be secured to a last molar and you have stretched it over the tooth, your assistant should be ready with a flat, curved instrument, the length of the curve being such that when the shank rests against the grinding surface the end of the curve will be resting against the tooth very near the gum. It can readily be seen that with such an instrument your assistant can easily and surely hold the dam and keep it from slipping off while you are drying the surface, placing the smallest amount possible of the sandarac on the surface, and applying a bit of soft spunk. Make sure not to have any of the varnish on the spunk which comes in contact with the dam, nor on any part except that which comes in contact with the tooth. However, if the

muscular force is very great, and the resistance is too much to be held by the varnish, substitute for it a little oxyphosphate of zinc, using the same precaution to have it adhere only to the surface of the tooth, which in either case must be clean and dry. We described and illustrated this method in clinics years ago and are at a loss to know why it is not more generally adopted.

If we have seemed to give this question of how best to apply the dam too much space, our only excuse is the belief that faulty methods often cause much discomfort to the patient and loss to the operator, who is not aware until too late that his patient has left him and gone elsewhere, trying to get rid of some of the unpleasant experiences unnecessarily imposed.

Unless one has had a cavity in a sensitive tooth prepared and filled, he cannot appreciate the feeling. Perhaps the dentist should be operated on at frequent intervals to remind him of how severe an ordeal the patient is constantly undergoing. But why dwell on this point here? Because much can be done to lessen this extreme torture, and too often the operator is careless in this respect to a censurable degree and to his own detriment.

To approach your patient in a delicate manner, pressing the lips back carefully, is almost sure to create a favorable impression, or rudely, quite as sure to cause annoyance at the outset. Again, much can be done to lessen the severity of dental operations. The use of the dam makes it possible to obtund much of the sensitiveness of dentine. There are numerous remedies, of which I will mention two, viz.: carbolic acid and tincture of aconite root, commencing with the carbolic acid and alternating with the aconite. If two or more cavities can be treated in the same sitting by including several teeth in the damming, all the better, alternating continuously the two remedies named. What it is that makes these remedies so effectual I can only surmise, but they seem to partially anæsthetize the nerve sensation. This treatment requires time, but the relief given fully repays for the effort.

Now for the removal of decay and shaping of cavities. It has always been accepted as a fact that a good, sharp, hatchet shaped excavator was the least painful; however, we trust we shall be pardoned fordiscussing this proposition here. As we said, the sharp excavator has heretofore been considered the least painful instrument for the removal of decay and the shaping of sensitive cavities; but

the best instrument for that purpose we now believe to be the modern improved bur, which is made on scientific principles. The arrangement of the blades is such that they clear themselves, and shave or cut the dentine instead of grinding or tearing it to pieces. The old style burs, even when new, were little less than instruments of torture, requiring heavy pressure to make them take hold, and soon clogging, causing much unnecessary suffering and accomplishing but little in a given time.

In fact, we believe it to be the duty of all operators to use nothing but the sharpest of cutting instruments when preparing sensitive cavities. A rigid observance of this rule would greatly lessen the suffering which is now inflicted upon the patients requiring our services. The bur that is used to cut away the surplus enamel should not be used to cut the sensitive dentine, as cutting the enenamel dulls and destroys the keen edges of the instrument faster than any other use to which it can be put, and the humane as well as the profitable thing to do is to change when cutting dentine and use only the sharpest excavator or bur that is made. Should it seem that we are dwelling too long on the subject of lessening suffering, remember there is no one thing that will increase favor and for which your patients will pay so liberally as the effort to relieve this extra suffering. We have never met a patient so penurious but what if he were made to understand that the time consumed in medical applications, the expense of sharp instruments, etc., lessened the severity of his suffering, would not willingly pay the extra cost to be thus relieved. The expense of sharp burs, either new or resharpened, is very little compared to the time gained by the use of sharp instruments. But barring the question of self-aggrandizement, consider it from the standpoint of duty. The dentist who inflicts unnecessary suffering, or who neglects to relieve his patient from all suffering possible, by adopting every legitimate means, is certainly censurable and does not deserve any degree of success.

We had hoped in this paper to discuss at least a portion of the questions concerning methods and materials which a dentist uses both in operative and prosthetic dentistry, but time and space will not permit it, so we shall have to defer these questions until the next article.

[TO BE CONTINUED.]

PREVENTIVE DENTISTRY.

By I. P. Wilson, D. D. S., Burlington, Iowa.

That very many of the operations performed in a dental practice could have been avoided, had the teeth been properly cared for, there can be no doubt.

The masses of people do not understand the importance of hygienic dentistry. Many, who observe the most scrupulous care as to personal cleanliness, and are even fastidious as to what they will eat and wear, and religiously guard every avenue of approach for disease that surrounds their homes or their places of business, yet they tolerate offensive roots or stumps of teeth in their gums. with tartar and decomposed food upon their teeth. These impurities vitiate the air that they breathe, and poison the food that they eat in the first process of digestion, and thereby render impure the blood which must supply the continued demand made upon it for reparative material.

The masses of people need to be educated regarding this all important matter. Who shall be the teachers? Were it not that parents, as a rule, are ignorant of the consequences of the neglect referred to above, we might excuse ourselves, and leave the rising generation in the hands of fathers and mothers. But we cannot, as a profession, afford to do this.

In the first place, a dentist should set an example of cleanliness. His teeth should be scrupulously clean, and his breath pure. He should not hesitate to speak frankly and freely to his patients regarding a personal matter that has so much to do with health, not only of the dental organs, but of the entire organism. Sensible people will appreciate such advice and instructions, while others who are more thoughtless, I had better said more senseless, will perhaps manifest indifference, and they may give you to understand that they do not appreciate any gratuitous advice, as they may deem it, pertaining to their personal habits.

The physician or the dentist who will stand by and see his patient's health, if not his life threatened with danger, and not fearlessly sound the alarm, is not worthy of his high calling.

Not only do the interests of our patients demand instruction at our hands, but our personal interests demand it.

It is the privilege of every dental practitioner to build up a clean, desirable practice that will not give him discomfort, nor

endanger his health. Let me emphasize more fully what I would say with an illustration:

Mrs. A. requests you to kill the nerve, treat and fill an aching tooth. On examination you find her teeth coated with tartar and decomposed food. You find some dead useless roots or stumps of teeth in her mouth, you also find that a number of her teeth are decayed and need filling, and, as a matter of course, you find Mrs. A. with an exceedingly unpleasant breath, and by no means a desirable patient upon whom to operate. You very properly suggest that a general renovation is necessary; that after an application has been made to devitalize the pulp, and relieve her of pain, that her teeth must next be cleansed, and then *kept* clean. The necrosed roots must be extracted, and the decayed teeth filled.

If this course of treatment is objected to by the patient, freedom from pain being the only object sought, I should promptly decline treating and filling said tooth, having too much respect for my olfactory nerves, as well as my precious health to voluntarily place myself under such contaminating influences.

It seems to me that in such cases our duty is plain. We cannot afford to jeopardize our own health, nor is it right that we should encourage human beings in totally disregarding hygienic laws. This may seem like heroic treatment, but nothing else will sufficiently arouse some people, and awaken their self-respect and pride, so as to stimulate them to action.

But I wish now to call attention to the thought that was first in my mind when I sat down to write this short paper.

It is a well known fact that, as a rule, the teeth of boys and girls decay more readily during their teens than in subsequent years. The reason is obvious, and need not be dwelt upon here. The preventive treatment I have to recommend is simple and effective, especially in the bicuspid and molar teeth. When these teeth first emerge from the gums, the enamel fissures are open, and a fine pointed excavator can readily be forced down into the immature dentine.

The imperfectly developed enamel in these fissures is sometimes mistaken for caries, and is treated accordingly.

Instead of attempting excavation in such cases, let the fissures be thoroughly syringed out with warm water, then dehydrate with alcohol, dry thoroughly, and fill with cement. Then place a little

of the dry powder over the filling and press it firmly with the finger, forcing the cement into the remotest recesses of the fissures, and excluding the moisture, if necessary, with the finger still upon the filling, and holding it there until crystalization has taken place. Then dress off the surplus, and in nine cases out of ten decay has been prevented, and without causing any pain from excavation.

But if decay has been prevented for only a few months or years, and the same treatment is then repeated, and the tooth is preserved through those early years of immaturity, and is afterward filled with gold, more of the tooth structure has been preserved, its natural color retained, and much less pain has been inflicted.

I need not enumerate the different conditions of the teeth, particularly in youth, and in pregnant and nursing women where cement may be used to great advantage in preventing decay.

Preventive dentistry should be practiced more by the profession than it is, and our patients will not be slow to appreciate our efforts, and remunerate us more willingly for preventive treatment, than for more taxing services.

A NOTE ON CAPPING A TOOTH PULP.

By C. R, Taylor, D. D. S., Streator, Ill.

It is often troublesome to cap a pulp with oxyphosphate of zinc on account of that material sticking to the instruments used to convey it to the parts desired to be covered without spreading it over the whole of the cavity. By the use of the following method the troublesome part can be avoided.

Take a piece of clean writing paper of the proper size and on the paper place a sufficient quantity of the cement, soft or hard, as the case requires; having taken hold of the corner of paper with the pliers before the cement was placed on the paper, carry the paper and cement to the parts to be capped, pass a burnishing instrument against the paper and burnish the capping to its place. If it is desired to get the benefit of the sticking qualities of the cement to assist in holding the filling in the cavity, put cement on both sides of the paper, before placing it in place.

The same method can be used with the paper and chloropercha.

Not only does the paper act as a convienient carrier but it is a splendid non-conductor. Superior to almost everything used for that purpose.

Reports of Societies.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

[*Continued from page 30, No. 1, Vol. 1.*]

The following paper was then read, entitled,

SUGGESTIONS ON THE TREATMENT OF BICUSPIDS.

By Chas. W. Jenkins, D. D. S., Zurich, Switzerland.

My invisible friend, Jack Tarnkappe, is a very welcome guest at the office. His presence neither disturbs the patient nor hinders me. To have, besides the operator, an assistant, a companion or two, a student and a colleague bending over the chair, suggest the coroner's jury or a dental clinic, both excellent in their place; but

"Let 'em stay there, do you see?"

As most of our patients are not men of brass, but women who think their 'nerves are delicate,' we are bound to keep at a distance all disquieting associations, and, in general, to have no more onlookers present than are necessary to expeditious work. Jack's invisibility, therefore, and, I may add, his inaudibility also, (to all but myself) are immense advantages. He does not obstruct the light nor divert the eye a second from the work in hand. But as he is both the prince of good fellows and the pearl among dentists, his timely suggestions, like angels' visits, are the more prized for their rarity.

Jack usually makes known his presence by a cheery word in my ear when I am in the middle of a perplexing problem. Sometimes he says: "It's only pluck-luck that you need to-day, old fellow!" and then I know that I am on the right line and only need to be a little more persistent than the devil (no disrespect intended!) in order to conquer all difficulties. Sometimes he bids me stop just where I am, make some polite excuse to the patient and go away into another room to quiet my own tired nerves for five minutes. While I am gone he administers invisible chloroform to the patient, or hypnotizes him, so that when I return both patient and operator are refreshed by new powers of endurance.

One day while adjusting the rubber-dam, having sinfully neglected to use cocaine about the margin of the gums, I suddenly

heard him whisper, "Chloro-percha will hold that dam water-tight, without the thread." Since then I have used chloro-percha in a great many cases, avoiding the torture of drawing the silk under the gum.

At another time I was worrying my patient in the attempt to crowd dam and silk beyond the edge of the cavity, which extended far under the gum.

"Reduce your compound problem to a simple one," he said, "by filling the lower portion of the cavity first with amalgam."

My temper was off color that day, so I doggedly persisted in trying to effect my purpose by methods that had sometimes succeeded. "This is what we call a treatment case," I remarked to the patient, with all the professional gravity at my disposal.

"It's maltreatment, you donkey!" cried Jack, so vehemently that, although I well knew that no one else heard him, I could not but be startled. "You are inflicting pain in the interest of a foolish experiment that has failed a hundred times before. Prepare the cavity as for immediate filling, without reference to the root; close the mouth of the pulp-canal and fill the center of the cavity with a bit of wood, leaving sufficient room and retaining-shape for amalgam at the neck; fill that with a good sub-marine amalgam and after it has become a little hard you can affix the dam as in an ordinary case; then take out your plug and treat."

Though not applicable to all cases, this method, suggested by Jack, has been of considerable service to me. It was, however, to present the views of my invisible friend regarding the filling of bicuspids that I sat down to write this paper.

It was while following the prescribed method in shaping two approximal cavities in one of these notoriously unfortunate teeth that I was taken to task in the following fashion: "Never mind the traditions of the elders nor the ambition of the young operators, who tell you that the coronal ridges must be cut away and a dovetail be made to anchor those side fillings. Work for a triumph of common-sense rather than a triumph of art. It is your business to save that tooth. When you have reamed out that fissure deeply enough to make what you regard a strong dovetail, and have cut away the coronal ridges, you have split the tooth in halves. You can split an eel from end to end and cut out and cut off nearly everything that belongs to him, and he will swim away pretending

to enjoy life the same as ever; but your bicuspid is a creature that gets discouraged when his insides are trifled with. When you have cut a channel from the distal cervical wall to the mesial, and filled the double-compound cavity resulting with cohesive gold—"

"Nothing but dynamite can throw it out," I said interrupting.

"No," he replied, "nothing but dynamite can start the filling, but you have fairly insured the early destruction of the tooth. One of the thin halves is likely to break away, leaving a golden monument of misapplied skill."

"Not if I carry the gold over the margins and clamp the two halves together," I anwsered confidently. "And I shape the crown so that the force of mastication can not come on the weakened cusps."

"You can only prevent that," he said, "by making the whole biting surface of gold. You have not only to provide for the ordinary regular occlusion of the teeth, but also for the grinding of hard substances and the sudden strains that come in chewing. A bit of bone or a bird shot caught between the weakened half of a tooth and its antagonist is enough to thwart all your skill. I have seen many instances of this when the work had been done by the best operators. Besides, but if both approximal surfaces and the masticating surfaces are of gold, you might as well,—much better,—cut off to the gum and set an all gold crown. I would rather wear beggar's motley, a patch on each elbow, each knee and two on the sitting-down place, six colors, than a gold bicuspid spotted with natural inlays. But in many cases,—in a large proportion when a reasonable treatment has prevailed from the first, these dovetailed fillings are unnecessary.

Fill the crown-fissure with oxyphosphate; it will last a long time in that position; or if you prefer, cover it at once with gold, leaving all the cement possible to bind together the threatened parts. Then line your approximal cavities with the same, putting a strong buttress of cement against the coronal ridge; cover with as thin a filling as you can make secure; you will keep your bicuspid longer and it will be better looking while it lasts. You will not have either the cracking away of the enamel at the ridge or the splitting off of the labial half, making your brilliant and costly operation useless."

"But we have a large number of cases where the division into halves has already been accomplished," I remarked.

"Apply the same principle as far as conditions allow. Make the cavity as dry as a Calvinistic sermon; fill it with the stickiest and strongest oxyphosphate you can get; and cover with only enough gold to protect the cement from the fluids of the mouth."

Jack's theories did not immediately convince me, but I began at once to apply them to particular cases of small bicuspids of poor structure. Having discarded the custom of inserting in incisors a greater mass of gold than is needed to prevent renewed decay, I was open to a proposition of this kind. Although it concerns only a small matter of detail,—the preservation of the coronal ridge and of all the dentine possible, in bicuspids,—the class of teeth that most try our skill and judgment, it has given me good results so far as applied. I strongly recommend it to the attention of my colleagues.

The secretary read two short papers presented by Professor MILLER, Berlin, who, being on a visit to America, was unable to be present.

A CASE IN PRACTICE.

BY PROF. W. D. MILLER, M. D., D. D. S., BERLIN.

The question of alveolar abscess in connection with teeth containing living pulps, has gained very considerably in interest through the recent discussions on the etiology of pyorrhoea alveolaris.

When an abscess of this kind is now observed, it is put down as the result of a deposit of uric acid or urates in the pericementum, in consequence of a general gouty diathesis and is considered as evidence in support of the view that pyorrhoea alveolaris must have a similar origin.

The following case presents some points which seem to me well worth considering in this connection:

Herr X. presented himself with a left superior central incisor very slightly elongated and slightly looser than its perfectly healthy neighbor on the right side. The tooth was distinctly discolored. On the gums, about one-half an inch above the margin, was a marked, ridge-shaped hard prominence, from the center of which exuded on pressure a minute quantity of pus. This condition of things had existed for some years The amount of pus evacuated was never considerable and sometimes it disappeared altogether for weeks.

Being sure of a putrid pulp, I trepanned the tooth from the lingual surface, but was very much surprised to run upon living tissue. The pain produced was not intense and was pronounced by the patient as "not feeling like the nerve." Nor did it at all produce upon me the impression.

The possibility has suggested itself to me that we have here a case where the chronic irritation at the apex of the root has produced absorption of the cementum and dentine, laying open the canal of the root and that granulations from the periosteum or bone marrow have grown into the canal as has been repeatedly observed in replanted or implanted teeth.

Nothing seems to indicate the presence of any deposit on the side of the root.

The patient is a young officer of most perfect health, in whose family there has never been a trace of gout.

DISCUSSION.

DR. KELSEY, Marseilles: "I think the most of us are too ready to talk of our successes, and to omit all mention of the failures which are generally the most instructive. We are ashamed of incorrect diagnosis, errors of judgment to which all are exposed. More than once have I found a tooth loosened, extremely sensitive to touch, the gum much swollen and pus oozing out all around the diseased organ, and have unhesitatingly pronounced it dead, when lo! upon opening it I have struck a live pulp. In such cases I have wished for some unfailing method of determining the condition beforehand."

DR. MITCHELL: "A heated instrument applied to the tooth will generally settle the question."

DR. GUYE, Geneva: "When other means of diagnosis fail, I cover the adjoining teeth with a double piece of rubber-dam and direct a stream of hot and cold water alternately upon the exposed tooth."

DR. HUGENSCHMIDT: "Two parties seem to be fighting each other, one claiming that pyorrhoea is always a manifestation of gout, while the other maintains that gout is by no means always a manifestation present in those cases. Both parties seem to consider gout as a quite independent disease. On the contrary, gout ought to be considered as only one of the principal manifestations of the arthritic or uric acid diathesis, in which condition, through his manner of living or for hereditary reasons, the individual does

not use up all the waste material in his system. Under the form of uric acid or other undiscovered form, this accumulates somewhere, giving rise occasionally, under a determining cause, to one or more manifestations. If having before you a true case of pyorrhoea alveolaris, you ask the patient whether he has ever had gout, or whether gout has existed in his family, and he tells you no, you have only put aside one of the manifestations of the uric acid diathesis. Ask him then if he has had rheumatism, muscular rheumatism, rheumatic gout, migraine, asthma or eczema, which are all manifestations of the arthritic diathesis, and you surely will get an affirmative answer.

As other manifestations on the teeth, leaving aside buccal lesions, which are found in that diathesis and absolutely belong to it, I would mention recession of the gums from the necks of the teeth, or any post-eruptive erosions, not due to any organic or mineral acid, such as those formerly attributed to the use of the tooth-brush and which looks as if produced by a triangular file at the neck of the tooth; all these are due to arthritism. The arthritic not only does not use up his waste material, but through his diathesis he becomes either languid or too hurried and does not properly use his masticating organs. Civilization has pushed the preparation of food to such a point that he thinks he does not need them and contracts the habit of not using them. Nature is always on the lookout for useless organs, always ready to throw them off. If you look at the teeth of a hunting or street dog that is allowed to run about and chew anything he can get hold of, you will find his teeth in excellent condition. But examine the mouth of a dog that is always watched by his mistress, who is particularly careful that he gets no bone but only soft food, and you will find that after four or five years the dog will lose all his teeth by pyorrhœa. As regards treatment, all arthritic or gouty patients ought to be put on a special diet by the family physician, who should also prescribe plenty of open air exercise. The patient must be directed to eat slowly, using his teeth on as hard substances as he intelligently can. Morning and evening the gums should be energetically rubbed with the finger. If pus be present, I use the following treatment, which has given me the best results for the past five years, and which has contributed to consolidate many a loose tooth. Having removed the tartar as carefully as possible from under the gum, I wrap a platinum broach

with a few fibres of floss silk, dip it in pure sulphuric acid and pass it as far down under the gum as I can. If the pocket is large I do this a second time. The treatment is repeated three days after. When the patient returns you will notice a decided improvement. Immediately after the application the mouth is to be rinsed with a solution of bicarbonate of soda, eight grammes to one liter of water. Between applications antiseptic mouth-bathing three times daily."

DR. SPAULDING, Minneapolis, a visitor, being asked by the president if he regarded chewing gum as beneficial, said: "Massage is very beneficial, and the use of gum answers that purpose to some extent, and ensures the needed exercise for the teeth. I should hesitate to use pure sulphuric acid; but I rinse the pockets and apply the aromatic, following with a mixture of calendula, Pond's extract and aconite."

DR. MITCHELL: "I have seen a case similiar to Dr. Miller's which puzzled me very much. A lady had on the gum a swelling about the size of a pea. The pulp was alive and the alveolar process was breaking down. There was no pocket and nothing else abnormal visible."

DR. GROSHEINTZ, Basel: "Dr Andrieu, of Paris, used to cure by the actual cautery. He claimed by this means to promote vital reaction in the gum and cause the pocket to shrink."

A METHOD OF DETERMINING THE COMPARATIVE ADAPTABILITY OF COHESIVE AND NON-COHESIVE GOLD UNDER PRESSURE.

BY PROF. W. D. MILLER, M. D., D. D. S., BERLIN,

It is an old question, which used to be discussed at dental meetings some fifteen years ago, whether cohesive or non-cohesive gold adapts itself more readily to the walls of the cavity so as to produce a watertight filling. The question was never settled, neither side being able to convince the other. Still it is a question of interest to the dental profession and well worthy of being definitely settled.

If we fold together a sheet of cohesive goldfoil, No. 4, so as to form a square about an inch on a side and, after having annealed it, press a coin upon it, we obtain a fair impression of the coin and a better one than when we perform the experiment with non-cohesive foil. From this it has been concluded that cohesive gold is more adaptable than non-cohesive. This is, however, a con-

clusion which is not at all warranted by the conditions of the experiment. Press the coin upon a piece of rubber dam, by means of which we obtain a perfectly watertight joint, and when we remove it, we have no impression whatever. In other words the property of retaining an impression is not synonymous with adaptability.

In order to approach the question experimentally I have made use of the following apparatus:

A glass tube about a foot long and ¼ inch in diameter is fixed, by means of sealing wax, perfectly upright upon a silver coin about an inch in diameter, which has a hole in the center. The tube carries a platform about 2 inches above the coin, which serves to carry weights.

In performing the experiment we fold together half a sheet (or a whole sheet) of extra cohesive foil to a square about an inch on a side, anneal it and place it upon a perfectly smooth surface. Upon this we carefully place our apparatus. We, then, by means of a funnel, which is drawn out to a fine point, so as to give a very thin and regular stream of water, slowly fill the tube with water and mark the height to which the water rises in the tube before it begins to escape between the coin and the gold.

Now dry the apparatus and repeat the experiment with non-cohesive foil, not annealing, and note the height as before. Naturally the better the adaptation of the foil to the coin, the higher the water will rise in the tube before it begins to escape under the coin.

Repeat both experiments an indefinite number of times, weighting the apparatus with weights gradually increasing from 1–10 pound to two or more pounds. The weights may be made of lead and should be ring-shaped, so as to pass over the tube. Fresh gold must, of course, be used for each experiment.

The experiment may be varied by filling the tube to a certain height and noting the time which elapses before the water begins to escape, as well as the amount of water which escapes in a given time.

The following experiments gave the results indicated:

Exp. I—Apparatus not weighted. Non-cohesive foil. The water began to escape when it had reached a height of 2½ inches in the tube. With cohesive foil the escape began at a height of only 1 inch or almost immediately.

Exp. II—Corresponding numbers for non-cohesive foil, 1½ inch; for cohesive, 1 inch.

Exp. III—Apparatus slightly weighted. With non-cohesive, foil the water escaped at 2½ inches; with cohesive foil, the water escaped at ¾ of an inch.

Exp. IV—Non-cohesive, 2¾; cohesive, 1¾.

Exp. V—Apparatus weighted with 1¼ pounds. Non-cohesive gold, 9¼; cohesive, 4¾.

Exp. VI—Tube filled with ½ inch of water. Non-cohesive water begins to escape in 13 minutes; cohesive, water begins to escape in 6 minutes.

Exp. VII—Tube filled 1 inch. Corresponding numbers 3 and 1¾ minutes.

Exp. VIII—Tube filled with 10 inches of water. With non-cohesive foil the level sank 125 mm in 2 hours and 20 minutes; with cohesive in 1 hour and 40 minutes.

These experimental results seem to definitely settle the question, that under low pressure non-cohesive gold is more adaptable and gives a better joint than cohesive. It would be interesting to determine whether the same holds good for high pressures.

Tuesday Forenoon.

Demonstrations and Clinics.

Dr. E. J. Wetzel, Mulhaus, gave a demonstration of the combination of cohesive and noncohesive gold in approximal cavities. The operation was on the right superior first molar, anterior approximal surface. The pulp being nearly exposed, the doctor lined the cavity with Caulk's cement. He then placed two cylinders of soft gold (rolled by himself) against both palatal and buccal walls, thereafter wedging them in place by two more placed against the cervical wall. He then forced two cylinders of tin foil, similarly formed, by hand pressure against the previous two in the centre, thus holding the gold tightly in place. The filling was completed in the usual manner with cohesive foil. Dr. Wetzel thinks that it is better that the gold should not be made homogeneously hard, but he finishes with Kearsing's No. 4, rolled into ropes, or Williams' Standard, No. 40 or 60.

Dr. de Trey, Basel, demonstrated the use of the crystal mat gold of his own manufacture, a material which, as shown by his

similar demonstration of it two years ago, possesses remarkable qualities, enabling the operator to use pieces much larger than is usual with any other. The same striking result was achieved as then. It is to be regretted that no opportunity for the profession to test the general usefulness of this form of gold has yet been afforded.

DR. BRYAN presented a case of immediate prosthesis with his special forceps, illustrated by models, and also presented the patient to show the result. The two superior cuspids had erupted inside the arch and behind the temporary cuspids. The models showed such a condition of irregularity that the prospect of success with the usual regulating appliances would have been extremely doubtful. The patient, a young man of twenty-four, of firm bony structure, was operated on in Basel eight days before the meeting. Chloroform was administered, the tempory cuspids removed, and parallel perpendicular incisions made with a surgical saw in the engine, through the heavy alveolus from the labial surface along the sides of the roots and through and into the alveolus on the palatal portion of the alveolar wall, but only slightly beyond the line of the root.

The brace or fulcrum, fitted to the labial portion of the alveolus and resting on a rubber pad, supported the one round jaw of the forceps, while the other was adapted to the palatal aspect of the cuspid. Strong pressure was required to force the tooth with its outer wall of alveolus forward until the cuspid occupied its normal position outside the lower teeth. The left cuspid now presented in its normal position and required no further treatment, not even binding in place. The right cuspid when brought into line was much too long,—as had been aticipated,—owing to its great length as it stood in the palate. It had therefore been decided before operating to remove it entirely, fill the root from the apex, deepen the socket and replace. This was done while the patient was under chloroform. The cuspid when replaced occupied its normal position, much to the gratification of those who witnessed the operation. At the writing of this report, seven weeks after the operation, the teeth, which have had no retaining appliance whatever, and have given no inconvenience in mastication, are well attached in their normal position, the pulp in the left cuspid being alive and healthy. The thick wall of the alveolus which was moved forward with the teeth, is partially absorbed and will soon,

as in other cases regulated in this way, present an even gum line.*

DR. AGUILAR, Cadiz, who saw Dr. Bryan operate at Chicago, presented a model of a forceps for operating by this method.

DR. LUCE presented a method of securing a cervical clamp when the cavity extends under the gum. The rubber dam having been brought well to place between the teeth, the interior of a cervical clamp (White's 73) is filled with red gutta percha, the tooth dried, the dam drawn up until gum and cavity are exposed, when the clamp, with the gutta percha heated to stickiness, is correctly applied and held firmly until the material is hard. This will hold the dam as high as one chooses to place it, care being taken to have the hole in the dam neither too large nor too small.

DR. CLUDIUS, Grenoble, exhibited some models by Dr. Herbst of Bremen, to illustrate that practitioner's method of making certain pieces of bridge-work fit the natural teeth closely by burnishing pure gold or platinum upon them and flowing upon it fourteen carat solder.

DR. MITCHELL: "The chief claim for this work of Dr. Herbst, kindly showed us by Dr. Cludius, is that it is quickly done and consequently cheap, and, it may be truly said, *nasty*. The work as presented has no redeeming feature; it is crude and slovenly constructed, with little consideration for mechanical principles and less for sanitary ones. We have in London many examples of such degradation in this class of work. Bridge-work should be a credit to the dentist, and I do not think that work such as this should in any way receive the endorsement of the Society. I would suggest that the piece of work shown by Dr. Spaulding be passed around with this in order that those interested may contrast them. Dr. Herbst's work shows how the thing is usually done; Dr. Spaulding's how *it should be done*."

DR. BRYAN: "Dr. Herbst's exhibit as I understand it, is more in the nature of providing us with methods for an emergency rather than attempting to show how it should be done in daily practice with skillful mechanicians in our laboratories. It gives us quick methods which look cheap and crude, but has points that may help in an emergency."

*Several articles have appeared on this operation in European journals since Dr. Bryan published his method in the *Dental Review* in 1892. It has been discovered that a very similar operation was once performed in Paris in the last century, but no records of a later date have been found Dr. Cunningham's paper, at the Columbian Dental Congress, on Dr. Bryan's operation will give modification of instruments and bring the subject more generally before the profession.

DR. THOMAS, Bilboa: "The cadmium in the solder will all burn out under the blow-pipe.

DRS. MONK, KELSEY, LUCE and others expressed an unfavorable opinion of this method.

DR. THOMAS recommended the use of jewelers' enamel to be flowed between the backing of porcelain and crowns, making an absolutely tight joint.

DR. MITCHELL, called attention to the fact that the different points of fusion of the enamel and porcelain forbade any actual combination, and questioned the durability of the joint.

DR. ELLIOTT, Florence, exhibited a model of a tooth set to replace one lost by pyorrhœa alveolaris. The porcelain was bevelled on the linguo-approximal edges so as to exactly occupy the vacant space and be prevented from slipping backwards, while to the backing, which was extended and stamped out to fit the

Elliott's Model's.

lingual surfaces of the adjoining teeth, including a little of the undercut, were attached elastic wings to grasp these teeth and hold them locked together with the porcelain tooth. The adjustment was very accurate, the tooth slipping readily into position where it was firmly retained.

PROF. AUGUST ETERNOD, who fills the chair of Histology at the University of Geneva, then gave, by invitation, a very interesting lecture on "The Law of Statistics in Hard and Soft Dental Tissues," which he illustrated by drawings, anatomical specimens, micro-photographs and ingenious apparatus.

DR. GUYE, Geneva, translated very ably for those who did not easily follow the professor in French. Owing to the nature of the demonstrations, requiring illustrations not to be procured, the lecture cannot be here reproduced in full. The Professor's originality, enthusiastic painstaking, and scientific ability received the warmest recognition.

TUESDAY AFTERNOON.

DR. A. V. ELLIOTT, Florence, Italy, read the following paper:

A FEW MORE WORDS ON PYORRHŒA.

In presenting this subject of Pyorrhœa Alveolaris, I wish to say at the outset that I am making no claim to original research. I have not gone into the etiology of the subject, nor into the close scientific hair-splitting questions which are all current today in regard to this puzzling and perverse disease. I have left this to men better qualified and equipped for such work, whose tastes, talents and enthusiasm give them a loving and caressing fondness for the habits and social life of the little microbe, who, as the poet has said, "Gets there all the same."

But without having gone into the deepest depths of the study of the pathology of the disease, I have had, in common with each of you, a good deal of practical experience with it,—enough to prove to me that there can be no hard and fast rule to apply to it. Usually when a case is presented to our notice the tooth has changed its position a little and is found to be more or less loose and sometimes elongated. The gum about the tooth is congested and unhealthy looking, and on taking a probe to explore it is found that more or less separation of the tooth from its attachment has taken place—usually more on one side than on the other—and that the process to greater or less degree is absent. Neuralgic pains are often associated with this condition of things—especially towards the latter stages—arising, no doubt, from the nerves in the roots having lost, through the progress of the disease, the natural protection of the gum and process—the root itself not being sufficient to protect the nerve from unusual thermal shock.

I deem it unnecessary in the presence of this audience to describe further this disease. What we want to know as practicing dentists is what is it, what is the cause, and how to cure it. Some of the best men in our profession are in open antagonism in regard to its origin, one set holding to the constitutional or systemic, the other to the local and limited. The constitutionalists agree that the disease, as we find it in the mouth, is but the expression of some fault or vice in the blood such as uric acid, scurvy, struma, etc. The uric acid or gout theory is very plausible in spite of the fact that for many years gout has been made the scapegoat of obscure diseases in general, and has been generally used as a convenience to cover up ignorance on the part of the diagnosticians.

In justice to Prof. Pierce, however, in this connection we must admit that his conclusions have been arrived at after a careful and scientific examination of the subject, and deserves our serious attention. It may be, and very probably is, the case that vitiated blood has more or less to do with the disease—whether primarily or secondarily is the question,—whether or not the disease has its origin in the blood. We, as dentists, have to devote our principal energies to the local conditions. They require the most careful attention, both mechanical and chemical, to insure any promise of amelioration.

What makes the disease so perplexing is the apparent perverseness of it—so contradictory. The "Eureka" of yesterday gives place to the discouragement of today. Rheumatic and non rheumatic, gouty and non gouty, strong and healthy, weak and anemic,—the only exception to this omnibus of conditions is age, we don't often find it in the young. Before Riggs' time there was not that close study into the pathology of the human jaw, we are favored with in these days of dental conventions. Our occupation was then more mechanical than professional and some even now, I am sorry to say, seem to consider it so.

It is easy to call the attention to the fact that the ancient and primitive men had perfect teeth, and so all things considered they should have had, but what proof have we of the fact As far as my observations has taught me there seems not to be so much difference as the changed conditions of living would warrant. I have studied the jaws of the ancient Egyptians at the museums in Cairo, the lake dwellers here in Switzerland, the ancient Romans at Pompeii, and in the Catecombs; the ancient Britons, the mound dwellers at Harvard University, the Etruscans in Italy; and but recently had the pleasure of seeing, through the courtesy and guidance of my friend Dr. Dunn, of Florence, a skull whose age it is impossible to estimate. It was so well preserved by the process of petrification that on removing a portion of that which was formerly the skull, the petrified dura mater showing the convolutions of the brain and the superficial blood vessels were still to be seen.

Yet this most ancient of earth's inhabitants evidently suffered from tooth ache, evidenced by two badly decayed teeth and a root. This interesting skull is in the museum of San Gimignano, a walled and medieval city, situated among the mountains of Cen-

tral Italy. It was found several meters under the surface, in a strata of the teretary period associated with disentegrated rock, fish shells, rubble, etc., the whole of which, although now over 1,000 meters above the sea level, was once under water and that for unknown ages.

Of the great number of ancient skulls which I have had the opportunity of examining I have invariably found a certain percentage among them bearing evidence of decay of the teeth, thus proving our remote ancestors were not so very different from ourselves as regards immunity from diseases of the masticating organs. If we go still further back past the missing link, which at present divides us from the brute creation, we find that the gorilla and chimpanzee—our nearest relations the other side of that link—are better off than ourselves in this respect. So are these animals as we find them now. The gorilla has a magnificent set of teeth, including powerful cuspids and third molars.

One would suppose that in those earlier times referred to, when a less complicated civilization existed to weaken men, and especially when the survival of the fittest was in vogue—the weaklings having gone to the wall in early life,—that decay of the teeth would be almost impossible and the same in regard to the disease we are now considering. I am sorry not to be able to indicate definitely the ancient skulls which I have seen showing unmistakable evidence of the ravages of this disease.

In examining these ancient skulls referred to, I was then interested in the question of caries and alveolar abscess and neglected other matters. But in thus referring in general terms to decay of the teeth I wish to assume by analogy other lesions relating to the masticating organs as well, so as to emphasize the immutable law in Nature, namely, *a given set of conditions invariably produce a given result.* Everything in nature is but a problem in chemistry or mathematics. If we know all the figures of the proposition or the chemicals in the compound and had the ability we could solve the problem, or by qualitative and quantitative analysis get at the result. But in this, like other problems in nature, we need more data before we can arrive at the truth. A solution will come in good time. I have faith in the Millers and Huxleys of the future as well as in those of the present day.

In my opinion pyorrhoea alveolaris is but the result of a tendency in the original constitution acted upon and developed by fa-

vorable conditions. I have had this truth strongly impressed upon me by observing the relative difference there exists between people of the same race and condition in life, but living differently. Take for example the Italian peasants. Those of the country whose diet is simple, consisting of polenta and hard black bread with hardly any meat and no condiments, have good and strong teeth and healthy gums, while their relatives, those of the cities, many of them originally from the country, living under different sanitary and dietary conditions have usually disgusting mouths. Theirs is a mixed diet of poor quality, including in it all the extras they can afford. But even among those, all are not equally affected. Some have moderately clean mouths.

I think we will always find that those races which are blessed with good teeth and healthy gums live on a simple and natural diet. Even our Irish when they first land at Castle Garden, before they become the aldermen and mayors of our cities, have generally good white teeth. Their diet at home was simple enough, consisting mostly of potatoes and milk—and good fighters they are, too. The Arabs have also very good teeth. Their diet is likewise very simple.

I was recently told by a gentleman fresh from among the blacks of South Africa that the Zulu Kafirs there, the natives of the place, have in their native state strong and sound teeth, but that those who are brought into contact with the white man and his civilization are much worse off, and frequently resort to the white chemist and his forceps for relief.

There are two great principles we must recognize as potentialities in regard to the teeth and their environment,—the way people live and the care they bestow on their teeth. A bad way of living induces bad blood and impure secretions. This idea favors the constitutional side of the question, but it is true, nevertheless. Rich people and those most favored, to outward appearance, often do violence to nature both as to quality and quantity in what they eat. Nature will not suffer violence without revenging herself sooner or later.

A favoring condition in those predisposed is the neglect to give the teeth the exercise they require. Some teeth need more exercise than others. It would seem as if in the combination of teeth and jaw strong teeth were often placed in jaws too delicate for their proper support. The teeth are all right, but the

jaw is deficient. What is needed in such cases is to brace up the jaw by giving it plenty of exercise—gymnastics and massage. It is said our forefathers had larger jaws than we have. They probably ate tougher steak and had less delicate French cooking.

Even dogs, if fed on soft and rich food without the opportunity of exercising their teeth, tearing the meat from the bone, etc. will suffer in time with the ills the superior animal, man, has, generally speaking, the monopoly of.

It is a well known fact in medicinal science that the non-use of an organ weakens it and that giving it proper exercise strengthens it. An arm done up in a sling soon shrinks away and an arm at the blacksmith's anvil will develop great power. With myself I sometimes notice a tenderness in certain teeth when commencing to masticate with them after having given them a holiday for some time by chewing on the other side. Whenever I discover this tenderness I take the hint and work that side for all it is worth until the tenderness disappears. You know it is a common habit with us to use one arm more than the other—some people are almost blind in one eye without knowing it—from not using it.

Another factor in encouraging this disease is improper cleaning of the teeth and gums. A perfunctory, careless and slovenly method is almost as bad as total neglect. The gums about the neck of the teeth should have a thorough massage with the tooth brush. The ideal mouth, judging from an extended experience, is that of the average American young lady. In her mouth, the gums are firm and healthy, the teeth free from tartar and the breath sweet. She owes it all to her innate sense of refinement and her tooth brush. She may be a tooth brush crank but it pays her.

Inregard to the treatment of and prognosis there are many cases presenting themselves which are hopeless—too far gone to attempt anything but alteration and with most of those the best remedy is the forceps.

There are others whose general appearance discourages any prolonged effort.

There are patients who never have the desire or patience to give the time demanded. After eliminating those we have a great variety to try our luck upon, from the doubtful to the hopeful, according to the stage of the disease and the patient's powers of cooperation.

The first and most important essential is scaling to remove all foreign adhesions, then a thorough washing out of the pockets and around the roots with peroxide of hydrogen—sometimes adding a little of the 1000 solution of the bichloride of mercury. After a little rest and rinsing out the mouth, the next application should be of the nature of a stimulant and I know of nothing better than a one in 10 solution of sulphuric acid with a few drops of the tincture of iodine added. This can be injected into the pocket or pockets under the free margin of the gums with a Donaldson bristle having a few shreds of cotton wrapped about it. This treatment might be changed sometimes and Robinson's remedy or something else substituted. The patient on leaving after the first visit should be instructed in the manner of using his brush. and as to the kind of brush. A prescription for a disinfecting mouth wash should be given him. The one I would give is Prof Miller's saccharin mixture, which should be used diluted. A formula for a simple and medicated tooth powder should also be given such as prepared chalk, orris root and chlorate of potash in equal parts. Besides which he must be instructed to rub the gums abou the roots with the fingers, especially up and down, a sort of massage exercise strengthening the gums and tending to press ou foreign matter from the pockets. And finally he should be en couraged to exercise the loose teeth as much as possible by chewing on them freely and persistently. Let him chew gum or anything else except tobacco, in which case the remedy would be worse than the disease. Like one's experience in gymnastics—at first the muscles are tender and easily fatigued, after awhile the exercise is a pleasure.

On my way here yesterday I passed a stone quarry. The size of the mallets used by the workmen were enormous—half an hour's work with one of them would use me up for a day.

In regard to the constitutional treatment my advice is to refer the client to the family physician. Proper treatment of the disease requires much co-operation from the patient.

DISCUSSION.

DR. BRYAN: "As a patient of Dr. Elliott's, I can subscribe to the efficacy of his treatment. I have two or three molars in the right superior maxillary, which periodically give me trouble as pyorrhoea patients. The first molar generally gets tender or loose

when I get away on vacation. Hotel fare, rich food with the usual half bottle of wine, want of regular exercise, bring on the symptoms; also when I 'get run down' from too much work at home. Generally a return to rational habits and plain diet shows an improvement in their condition, and a little stimulation with chloride of zinc or iodine or aromatic sulphuric acid will keep them in a useful state nine months of the year, my working year. Dr. Harlan, of Chicago, found this six-year molar in a condition in which Dr. Wetherbee, of Boston, had advised the cutting off of the buccal roots and extracting them. But the tooth has been saved to usefulness by drilling into the pulp chamber, killing the pulp and filling the root. It has given me less trouble since. There was great recession of the gums, nearly exposing the apex of the palatal root. Last winter at Florence, Dr. Elliott found a swelling and pus near the point of the root of one of my lower incisors which apparently had no connection with the pulp, which was healthy, nor with the exterior as a pocket infected from without. I am inclined to think that we often overlook cases of pyorrhœa, ascribing them to some other cause. Lancing and stimulating quickly restored this tooth to usefulness. This class of cases has lately been described by Prof. Black, and classified as a distinct form of pyorrhoea."

Dr. DuBouchet, Paris: "Leaving aside those cases which are produced to a certain extent by deposits of tartar, I would call attention to those resulting from systemic causes. If time permitted, I might make profitable quotations from all the able papers of Dr. Pierce. My own treatment is as follows: At the first sitting, remove the tartar as thoroughly as possible, then syringe with tepid water, driving out all *debris*, and free pus if there be any. Press with the finger upon the gums in order to expel more completely any that remains. Then with a platina probe-pointed nozzle upon my hypodermic syringe I inject peroxide of hydrogen into the sockets. The next day I make the same injections, followed by an additional injection of aromatic sulphuric acid, continuing this treatment every other day as long as necessary to effect a cessation of the pyorrhoea. Within the past three years I have made the following addition for obstinate cases, which are considered as more marked manifestations of the uric acid diathesis: I prohibit all alcoholic drinks and advise a *regime* of *sweet* cider. As many know, the systematic action

of the malic acid is to transform the uric acid into hippuric acid which has not the inconveniences of the former. Under this treatment and *regime* I have obtained a number of vastly improved cases, as well as some apparently cured. I say apparently, because there is a tendency after a time to recurrence of the malady in many instances. I should not forget to mention that mild dentrifices, easily dissolved in the saliva, are used by my patients as well as the systematic brushing of the gums with a soft bristle-brush (such as shaving brushes are made of). I also recommend an astringent wash and frequent pressure upon the gums."

DR. THOMAS: "Sumac, which is obtained from a plant that grows in Spain, is useful in pyorrhoea; I find that the gum recedes and the teeth get firmer after its use."

DR. ELLIOTT presented a paper by Dr. Chas. W. Dunn, of Florence on

ARTIFICIAL DENTISTRY AMONG THE ETRUSCANS.

By CHARLES W. DUNN, L. D. S., FLORENCE, ITALY.

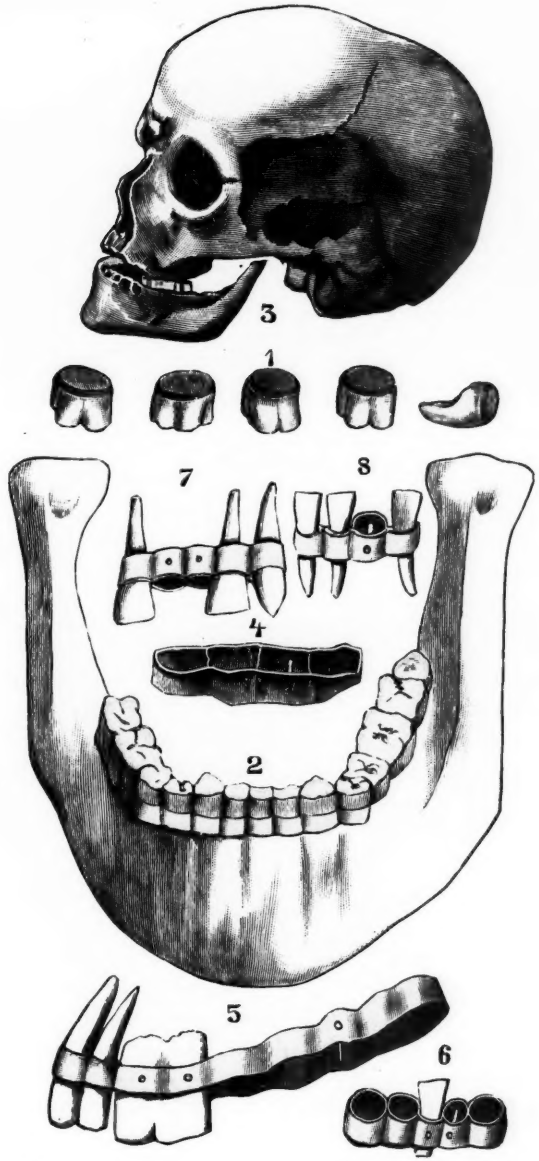
Proofs that the art of Dentistry was practiced by the Etruscans, have been found at different places, and that they had arrived at considerable skill, is very evident.

In the Etruscan Museum in Florence there are the crowns of eleven teeth, one canine and ten molars; they are completely hollowed out (the enamel only remaining, and this is perfect); not a particle of the dentine, excepting in two, has been left. They appear as if they had been prepared to crown broken teeth or roots; they are greenish in color as if they had been in contact with bronze.

In Florence, in the writer's possession, there exists an Etruscan skull, in the under jaw of which a gold band or ribbon has been interlaced in and about the incisors, embracing the canines and bicuspids. This probably was done for the purpose of supporting some of the teeth when they had been loosened.

At Marzabotto, near Bologna, in the collection of Count Pompeo Aria, there is a deciduous incisor tooth mounted exquisitely in gold; in this there is a loop, through which a cord was passed, so that it could be worn as an ornament.

An artificial tooth attached by gold wire was found in an Etruscan skull at Marzabotto also. This skull was sent with other



For description of these engravings see Dr. Dunn's paper, page 92.

Etruscan objects to a foreign scientific society, but it was never returned to Count Aria.

In the National Museum at Rome, at the Villa Giulia, there is an Etruscan skull which has a small denture in gold. There is a space which probably held a false tooth; the rivet passing from side to side would indicate that the tooth was held there in place by it.

At Corneto, an Etruscan city some forty miles from Rome, in the two museums existing there, are four specimens of Etruscan dentures carrying artificial teeth, three for the upper jaw and one for the lower.

They all are made with bands, without any palate, and resemble the bridge work of these days.

The principal one is an upper denture in gold, with eight apertures or rings. Five of these passed around teeth which were standing during the life of the person who wore them.

Two of these, the right upper canine and the right upper lateral, are still remaining in their rings or bands.

These bands extend from the right upper canine to the first left upper molar.

The two front upper incisors and the first upper left bicuspid were false teeth.

Owing to the incrustation of "tufo," earth, tartar, or probably all combined, about the two front upper incisors, and especially on their base or on that part of it which rested on the gum, it was very difficult to judge of what they were composed.

They apparently were carved out of one piece of material.

It may be stone, pottery, a fish's tooth, or a piece of enamel of a large animal's tooth.

They do not seem to be human teeth.

The form has been given somewhat roughly.

They were riveted from front to back with two rivets into the gold ring around them.

The ring which had served to occupy the space of the left upper bicuspid had evidently supported a false tooth. This had disappeared, but the rivet of gold wire which passes from front to back shows evidently what purpose it had served.

The piece terminates with a ring which encircled the first left upper molar.

It is evident that one of the bicuspids had been lost during the life of the individual, for some time before the denture had been made. The space had closed up.

The denture is of very excellent gold; it is probably nearly pure in quality, rather thick, and made strongly. The workmanship is very good, and the plate has been carefully and nicely finished; no file marks are apparent, all is smooth and artistically done.

The rings or bands are joined by solder, a solder so good that its color, even after it has been underground for so many centuries, probably twenty-five or thirty, is equal to that of the other parts of the plate. Even with a good lens it is impossible to detect any difference of color or any flaw of any description.

In the Stanza Ottava, in the same Museum at Corneto, there is another gold denture for the under jaw. It was made to embrace five teeth; two of these were the false teeth, one of them an incisor; a human tooth is still in position. The other is missing. The gold rivets remain.

The tooth fixed with a rivet has its root filled quite short.

There are four divisions, and the soldering is here also exceedingly good.

The gold bands are thick and strong and appear to be almost pure.

In the Palazzo Bruschi, also at Corneto, there are two other dentures, one to hold two upper front false teeth with rings around three teeth, which served to hold and sustain them in the mouth. These three teeth are still inside the band or rings which held them during life.

The other denture has three teeth clasped and one empty space where the false tooth was attached.

It is made in gold bands with rivets of gold; the union of the different rings had been brought about by the same admirable soldering.

DR. THOMAS: "The Mayr Indians used to sear their decayed teeth with red hot instruments; and for pyorrhoea burned an herb inhaling the smoke to destroy infection."

DR. JENKINS: "I should doubt if they ever had pyorrhoea."

PROFESSOR VULLIET (Chair of Gynæcology, Geneva) gave a very instructive talk on Dermoid Cysts, of which the following is an extract:

"In its simplest form the dermoid cyst is composed of an envelope containing epithelial cells in which we find crystals of cholesterine, the whole having the consistence of granulated honey. In other forms we find hair with sebaceous glands and sometimes teeth. The teeth found in dermoid cysts are identical in structure with normal teeth, but not in arrangement. Sometimes the root is missing; sometimes they resemble in form the supernumerary teeth. As many as one hundred have been found in dermoid cysts located in the ovaries, but never more than twenty in other parts of the body.

Many theories have been advanced as to the etiology of these cysts. The theory most generally accepted is that, through some accident in foetal life, embryonic tissue capable of generating teeth and hair gets included in parts of the body other than those in which it belongs, and is developed later. These cysts are often malignant tumors. They develop very rapidly. Perfectly developed teeth have been found in new-born children."

A member having asked if teeth in cysts could be subject to decay, the professor replied that possibly they might, as microbes could be conveyed through the circulation. Another question was to the effect, Is the appearance of teeth in cysts accompanied by their non-appearance in the mouth? Answered in the negative. The professor exhibited two specimens of dermoid cysts, one having three teeth in a piece of alveolar process.

The hearty thanks of the Society for Prof. Vulliet's interesting discourse was indicated by a unanimous rising vote.

Dr. Wetzel reported a curious case of cyst containing a piece of the parietal bone and a number of incisor teeth.

Dr. Mitchell: "Some years ago I shot a pigeon in which was a tumor containing the vertebræ of another pigeon."

Wednesday Forenoon.

A paper prepared by Dr. J. H. Spaulding, Paris, was read by his brother, Dr. Spaulding, of Minneapolis.

TUBE-TEETH IN BRIDGE WORK.

By Dr. J. H. Spaulding, Paris.

You are all well aware that bridge work as most universally constructed even by our most skillful mechanicians presents two glaring defects, viz:

1st. The danger of breaking off of the porcelain faces of molars and bicuspids especially and the difficulty,—I might almost say impossibility—of proper repair in such event.

2nd. The hideousness in appearance of such bridges which show an almost unbroken surface of gold on the masticating and lingual aspects.

In the use of the English Tube teeth I have succeeded in overcoming entirely both these defects.

While the very primitive and often grotesque forms in which these teeth are still manufactured leave much to be desired as to beauty and natural appearance I am of the opinion that they can, even with these defects, be advantageously employed in all literal bridges, i. e., in the replacement of one or more bicuspids or molars. If they were to be more generally used for this work I have no doubt the manufacturers would replace their old and ill-shaped molds by those having more reference to nature and beauty.

Take for instance a case commonly presenting: 1st. sup. molar very badly decayed and requiring a crown; second bicuspid gone; first bicuspid root only remaining.

This represents a simple bridge of one tooth which can be extended as circumstances demand, after suitable preparation of the roots. Make cap and pin for molar and bicuspid in the usual way, place these on the roots, take impression and make model. Next select tube molar and two tube bicuspids. Those which are to be attached to the caps and pins already prepared are ground to fill the cap but concaved on the side presenting towards the space to be filled (model shown). Over this end of each tooth so ground burnish thin pure gold plate, pierce a hole and push through plate and tube your platinum wire *size to fill the tube.* Remove tooth and fix with 22 K solder. Replace tooth in position and burnish gold more carefully and trim off excess (see sample tooth prepared). For convenience in description we will call this the base. The tooth with its base is now placed in position on cap and held with wax, the tooth slipped off and the base and cap united by the wax are invested for soldering. Boil out wax and solder with 20 karat solder. The tooth which forms the bridge, i. e., fills the space between these two crowns of attachment, is ground so as to leave the very necessary self-cleansing space thus, the base made in the same manner as above described. Now fill the concavity in this base with 20 K solder (see sample tooth

prepared.) Next slip the teeth into place and adjust the bridge as desired and wax all together. When this is done lift the bridge off the model, slip off the teeth and invest for final soldering Please observe that at no time do you keep the tooth or teeth in place while soldering, which is a great advantage. Much less gold and solder are used than in the ordinary method, which is an economy of great importance and almost none is presented to view when the bridge is in place.

The next step of polishing the gold part of your bridge is to attach the teeth, which can be done either with cement or with sulphur. In the latter case the bridge and teeth are warmed and melted sulphur placed around the pin and base which receive the tooth. After a little practice this is very easy. You will have perceived without my insisting that the *two great advantages* which I claim for this manner of constructing bridge pieces are perfectly accomplished.

If at any subsequent time a tooth breaks you have only to select another, grind it to fit and fix it with cement. Can any repair be more simple? But this is totally necessary, as these tube teeth are very strong and do not readily break. I am using these exclusively for bicuspid crowns and claim for them a more perfect adjustment to the surface of the root than can be had with any other tooth besides simplicity in preparation.

I will try and briefly describe it. Your bicuspid root is ground even with the gum or as nearly so as possible, or convexed, if you prefer. They are more often rendered very irregular by decay so that you have a very uneven surface. Pure gold plate is burnished to this surface and with the mallet and proper instruments made to enter all irregularities. A hole is punched in this plate and your pivot driven through into the canal previously prepared. Plate and pin are united with solder and the plate trimmed to correspond *exactly* with the size of the surface of the tooth. The tooth is ground and the *base* made and soldered to the plate and pin exactly as described for the bridge.

I have been using tube teeth exclusively for most crowns and all bridges for about two years and a half, and as it was an original idea with me I have thought best to test it well before bringing it to the notice of my confreres. Last year, however, an article was read before the Columbian Dental Congress at

Chicago, touching upon this subject, but the methods therein described seemed to me to be too complicated. The conclusions are, after a somewhat extended use of the tube tooth, that they are very advantageous, because

1st. They are the strongest teeth.

2d. That either for plates or bridges they admit of easy, *very* easy repair in the rare cases where this is necessary.

3d. They can be ground and polished according to the artistic demands of the case without injuring their appearance.

4th. They are very easily adjusted and no soldering is done with the teeth in place.

5th. A great economy of gold and solder is made.

These teeth must be used to be appreciated; they have gone out of fashion because they are not American, driven out by popular prejudice, aided by their unnatural, often hideous, shapes. Let us use them more and demand that the manufacturers give us the same teeth in newer and more natural molds made according to nature. If their use ever becomes general under these conditions the pin-tooth will have had its day.

DISCUSSION.

Dr. Mitchell: "Nine years since I suggested the use of tube teeth for pivots. In soldering the pins to the plate for tube teeth the plate should be countersunk slightly on both sides, and a minimum amount of solder used; otherwise it flushes up to the base of the pin and hinders the letting down of the tooth. I find that dental alloy pins are stiffer than gold. German silver is as good for pivots, screws, etc., for all practical purposes, as gold, platina, iridized platina, or dental alloy. If there be not too much zinc in it, it is really stronger than any of them. Its oxidizing point is very low, the copper and nickel of which it should be composed, favoring this great qualification."

The discussion was continued by Dr. Fred'k Young, Cannes, and others until it was time for the business meeting, which concluded the official proceedings.

Of the social features of the occasion, some of which were enlivened by the presence of dentists' wives,—the best in the world, as they have need to be,—of the banquet at which Consul Ridgeley regaled us with the latest and best in song and story, of the perfect afternoon on Geneva's beautiful lake, and of another

lounged away on charming Saleve, only this hint is given, to excite the regret of those who "might have" come but unhappily staid away. Better luck to them next year!

OFFICERS FOR THE YEAR 1894-5.

President, Dr. Charles W. Jenkins, Zurich.

Vice-President, Dr. William Mitchell, London.

Treasurer, Dr. Charles J. Monk, Wiesbaden.

Secretary, Dr. J. H. Spaulding, Paris.

Executive Committee, Dr. C. W. Jenkins, Dr. G. C. Daboll and Dr. Arthur C. Hugenschmidt, Paris.

Membership Committee, Dr. W. Mitchell, Dr. L. C. Bryan, Basel, and Dr. Waldo E. Royce, Tunbridge Wells.

The next annual meeting will be held the first Monday in August at Boulogne, France.

CHAS. W. JENKINS,
Secretary.

COMPRESSED AIR.

Compressed air has lately come into use in the offices of a good many dentists, and after once becoming acquainted with its numerous virtues one would feel very much at a loss without it.

I am so much pleased with it that I want to tell my brother dentists about it. It can be utilized by dentists very generally, as any town large enough to have water works or an electric light plant can furnish the necessary power. The water pressure is the less expensive of the two, as a motor is necessary to the equipment by electricity. For the former a beer pump is obtained and attached to the cold water supply and the waste. This may be placed in the laboratory under the sink out of the way and be also connected with a thirty or forty gallon hot water boiler, such as is used at a kitchen range. This makes a reservoir of sufficient capacity to contain enough air to be used for a considerable length of time and in larger quantities than the pump would supply. The compressed air in combination with illuminating gas makes a beautiful flame for blow-pipe work, as the proportion of air and gas can be so nicely adjusted. Then as a chip blower at the chair it does away with the old-fashioned kind. The only objection heretofore being that the air being compressed and of a lower temperature than the atmosphere makes its use quite uncomfortable in a sensitive tooth, but I am very happy to be able to say that that objection has been done away with, as now I can heat the air to any temperature desired by electricity, and no matter if the air pressure is as high as sixty pounds it can be heated just as nicely as if the pressure were but five pounds.

Besides this, there are so many purposes for which this compressed air is useful that I advise everybody who can, to have it, as it is really an invaluable adjunct in the operating room and laboratory.

I might add that to the same wire that furnishes electricity to heat the air. I have an electric mouth lamp and a root dryer attached.

A. W. MCCANDLESS, Chicago.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

CURIOUS, ISN'T IT?

The Illinois State Board of Health has decided that a graduate of a school of pharmacy, veterinary science or dentistry is not entitled to one year's standing in a medical college. In other words, if a graduate of any such school applied to a medical college for admission he would have to enter as a freshman.

Now, let us see how it works. The American Medical Association is open to a graduate of any reputable dental school, who first applies to a local medical society for admittance. There is an incongruity somewhere; either the state Board of Health is acting erroneously, or the American Medical Association is better qualified to judge of the qualifications of its members than the Board of Health. In discussing the question the editor of the official organ of the A. M. A. says: "Such sweeping rejections should lead to organizations of the better (*sic*) classes of these schools similar to the American Medical College Association." The National Association of Dental Faculties has been in existence since 1884!

Right here in Chicago there are at least three dental schools giving courses in anatomy, chemistry, histology, physiology and materia medica, exactly identical and equivalent to the same course in every medical school in the city. To say that such graduates are not entitled to an advanced standing of one year in a medical school is to reopen the question about the recognition of dentistry as an independent profession or as a specialty of medicine. We hope that the authorities will not take such a backward step, but give credit to those entitled to it.

A dental student who spends three years in acquiring a dental education should not be required to go over again the first year's studies in fundamentals to satisfy a blunder made by a state board of health in Illinois or elsewhere. The M. R. C. V. S. is as highly respected in England, from the educational standpoint, as the M. R. C. S. or L. D. S. In each case the time spent is the same, but the final work in the third and fourth years varies according to the degree sought for by the applicant.

TO LEGISLATE.

Boiled down, the object of legislation is to protect the public from imposition and malpractice. By the enactment of laws governing the practice of dental surgery the profession is given a definite standing. The ones who attend to the enforcement of laws ought to have compensation, and power to force obedience to legislative enactment. In order to place all on an equality who desire to enter practice a minimum of requirements should be formulated which could be lived up to by the applicant before presenting himself for such an honor.

If a graduate of a dental school is to be recognized by a board of examiners the methods of the school ought to be open to inspection and examination at any time. If anyone can come before a board for examination, a limit of at least three years practical work ought to be exacted before such an application should be entertained. A State board should not grant a degree for obvious reasons. If you have any views on legislation let's have them.

DIGEST. PREPARE. COMMENT.

The word digest, for the uses of this journal, has not as yet been fully classified; that is to say, we have not decided whether it will cover only the usual definition or not. Webster says: To distribute or arrange methodically; to work over and classify; to reduce to portions for ready use or application; to prepare; as to *digest* the laws, etc. That which is digested, especially that which is worked over, classified and arranged; a body of laws; a

summary; an abridgement, as Comyn's *Digest.* At present we will not determine the question. To simply digest an article, without review or comment may seem tame, vapid and uninteresting. To digest and comment in a friendly or critical manner may enhance the value of a contribution. To digest and criticise and offer something for that which is digested, may not be to the liking of authors, it may seem captious and may be impertinent. We would not dare, as did Pendennis, the reviewing of the Encyclopedia Britannica at an hour's notice, without digesting it. Until our staff settles down to work and some uniformity of style is guaranteed, we will not venture to predict just what *digest* means. Our shortcomings are many as yet, but we hope as the days go on, to fulfill our promise, "to furnish monthly, in a condensed form, a *digest* of the important matter *in* all dental periodicals," with appropriate suggestions, criticisms, warnings, comments, and withal conservative discrimination in selecting the matter to be digested.

Any friendly suggestions from our readers will be highly appreciated. Give us a sample of a digest of some article in the present issue, with or without comment or criticism.

THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES.

We had hoped that when this issue of the DIGEST went to press, the suit defended by the Protective Association, with the International Tooth Crown Company, in the State of New York, on the Low Bridge Patent, would have been argued and in the hands of the judge for decision. This is the only suit that we have been able to make the Crown Company fight to the end, as they have either run from us in every other court in the United States, or we have beaten them.

Notice was served on us to appear before Judge Wheeler in the Federal Court in Brooklyn, February 5th. We answered this notice and waited all the week, but owing to a press of other cases, and to the ending of the term of court, our case was indefinitely postponed.

This suit is of great interest because two principal questions are involved; first, the validity of the Low Bridge Patent; second

whether the Crown Company have sufficient title to the patent to issue licenses or bring suit against members of the profession. If the court should decide that the Company have not sufficient title, it would either end this litigation, or compel them to begin all over again. At all events, the case will come up for a final hearing in the near future.

There are many matters relating to this and other suits of especial interest to the members of the Association and to the profession that require mention, but as we have just returned from New York, and as the journal must go to press, they will have to be deferred till the next issue. J. N. CROUSE, Chairman.

Letters.

LETTER FROM LONDON.

IMPACTED THIRD MOLAR.

To the Editor of the Dental Digest:

DEAR SIR.—If you will allow me a little space in your journal I shall be pleased to place before your readers a comparatively easy method of successfully contending with what not unfrequently proves a difficult and anxious operation. The patient, a young lady, aged about 20 years, well nourished, and a perfect specimen of early womanhood, presented herself for advice as to a badly impacted third right inferior molar, which had caused considerable trouble, at intervals, during its attempted eruption; examination revealed the fact that no ordinary case of impaction presented itself, the superabundant gum tissue was somewhat swollen, very hard and tense, instrumentation showed the anterior cusps to be in very close apposition to the distal root of the second molar, while the distal surface of the offending tooth was barely on a line with the gum margin of the second molar, which I would add was a finely developed tooth and perfectly sound, in fact the entire denture (except the third molar spoken of) was as well nigh perfect as regards soundness and development as possible—hence the desirability of saving this tooth intact. Extraction of the third molar was decided upon; but the question that presented itself was, how to do so? With only the sacrifice, or mutilation of the second molar as a precedent in such cases I decided upon the fol-

lowing plan: After applying cocain to the gum I cut it away so as to expose the tooth as much as possible, packing the opening thus made with cotton previously saturated with sandarach varnish; this was removed later, and replaced by pink gutta percha. As the patient had to make a visit in the country, several weeks elapsed ere I was able to proceed further with the case. Upon the return of the patient I removed the plug, drilled into the most easily accessible part of the tooth and made an arsenic dressing; in twenty-four hours I was able to start with diamond discs to amputate the anterior cusps. I soon found the diameter of my discs (⅞ inch) was insufficient to accomplish the desired object, so deep down back of the second molar was the tooth operated upon. I found it necessary to have some German fissure burs, 1⅜ inches long, made. These were used in the right angle hand piece to complete what was attempted with the discs. After nearly an hour's careful work, I was enabled to pick out the piece I had cut off, which represented an angular piece including one-half the grinding surface of the tooth, extending antero-obliquely to below the enamel on the anterior approximal surface.

The apparently long time devoted to cutting off the piece referred to will be accounted for by the proximity to and necessary avoidance of the important structures at their entrance to the inferior dental canal.

At a subsequent sitting the patient was anæsthetized with nitrous oxide, supplemented with ether, lest the extraction should necessitate more time than the gas narcosis would permit of. The space gained, well permitted the extraction of the tooth, the operation, owing to the preliminary precautions taken, resolved itself into an ordinary case.

The effectual saving of the second molar intact, and not knowing of a precedent for such an operation, is my only apology for encroaching upon your space. W. MITCHELL, D. D. S.

39 Upper Brook St., London, W.

IMMEDIATE ROOT FILLING.

To the Editor of the Dental Digest:

DEAR SIR.—I will now comply with your request and give a report on result of immediate canal filling by Dr. ——— at a clinic. The tooth began to get sore and tender to the least touch about three

hours after the canal was filled. I left on an eight o'clock train that evening for home. You will understand my state of mind better when I tell you that we discussed the horrors of the inquisition, the burning of Michael Servitus at the stake and the destruction of the Midianites, men, women, children, oxen, camels, and asses. So you see I was furious when I arrived at home at ten or eleven o'clock. I went direct to my office painted gums with aconite and iodine, kept that up until next afternoon, when inflammation began to subside and in two or three days I was comfortable. I attempted to have it filled with gold at the expiration of ten days, but the excavation caused soreness, so I had it filled with cement. The tooth is never free from tenderness. If it gives any more trouble I will either call on you or Dr. ———.

I am yours truly, B.

Bibliographical and Selections.

DIGESTS.

The Dental Practitioner for January contains a number of interesting contributions, one of which is a paper by W. W. Belcher on "The Relation of Nitrous Oxide and Asphyxia." The writer thinks that Nitrous Oxide is a true Asphyxiant, and in proof cites a number of experiments made upon himself; one of which is to turn a small amount of gas into a gasometer, breathe the same, until it is consumed, and then to breathe into the gasometer, using the same air over and over, when it will be found there is no interruption to the anæsthesia, and the symptoms will remain the same. He also gives a description of the sensation of Narcosis, as insensibility comes on from the action of the gas, and in closing quotes the following lines as a warning to those administering an anæsthetic:

"Sleep and death are twins of winged race,
Of matchless swiftness, but of silent pace."

"Rubefacients and Vesicants," is the subject of a paper by A. W. Harlan, which is well worth reading, as often one of the few hints contained in this paper, if followed, will save the operator much trouble, and the patient considerable suffering.

A paper by W.W. Coon on the subject of "Hypodermic Medication," is very interesting The essayist recommends the use of the hypodermic syringe, as it has a wide range of usefulness in the hands of the progressive dentist.

The drugs recommended for use are: caffein, strychnine, nitroglycerine, (or glonoin), ergot, morphine, cocaine, atropine, apomorphine, and hyoscyamin. There are many instances in a large practice, where the "needle" will prove of great benefit, and for that reason every dentist should be familiar with the use of it.

H. M. Fish has a paper, the subject of which is, "Why not Have County Societies?" It is a plea for the organization of a society in every county, which shall include the majority, if not all, of the practicing dentists of that locality. The writer believes there is strength in unity, and that if more of the profession at large were brought within the society circle there would be less unethical practice.

The following subject is one of three papers, which taken together, form a corrolary. The first paper is on "The Preparation of Cavities for Gold Filling," by F. E. Howard. In it the writer explains the preparation of cavities in different stages of decay, which is of interest mainly to the young practitioner.

Edwin Day Downs writes the second paper, which is very interesting, on "Choice of Filling Materials, and Methods of Use." There are a number of good thoughts presented by the writer, one of which is the selection of material for filling children's teeth. The thoughtful dentist must realize the responsibility he assumes in the case of the teeth of young patients, and, as the writer says, "on his treatment there may rest the future health, appearance, and well being of the man or woman." He also gives good advice when he says: "Treat the little children as you would have other men treat yours."

"Finishing Fillings", is the subject of the paper which completes the circle composed of the two preceding. The writer, Frank B. Darby, says: "There is no doubt but that the average dentist knows *how* to properly finish all fillings; but does he *do it*?" When it is understood that in proportion as a filling is finished, everything being equal, the longer its durability, the lack of a little more time, or labor, should not be allowed to mar its permanency. The paper contains many practical hints, and as the writer remarks, the subject was "threadbare years ago," still it is worthy of much consideration.

There is a Reportorial Review of the Twenty-sixth annual meeting of the Fifth, Sixth, Seventh, and Eighth District Dental Societies of New York. The article reviews the meeting in general, as well as the papers that were read.

The Quarterly Circular for December, published by C. Ash & Sons, contains a paper on "The Treatment of Anomalous Positions of the Teeth," by Dr. Warnekros, of Berlin. The writer describes a method he uses for moving one or more teeth, either labially or lingually, with the aid of a rubber plate and a piano wire spring. To one end of the spring is a small vulcanized rubber pad, which rests against the root, and the other end is imbedded in the plate; if it is desired to move the entire tooth, two springs are used, one resting against the root, the other against the crown. The method is similar to that of the Coffin plate, but can be adapted to a larger number of cases. The paper is profusely illustrated with cuts showing the manner of using.

Mlle. Henriette van Gelderen, of Amsterdam, has a short article on "Imperfect Occlusion of the Jaws." She cites the case of a young patient, where there was more than a centimetre between the superior and inferior incisors, when closed, due to the abnormal position of the coronoid apophysis. This was remedied by the extraction of the first superior molars, after which a cap, partly covering the head, and another adapted to the chin, the two connected by rubber bands at the sides, were worn for eighteen months, at the end of which time the jaws were brought together, and the teeth then moved into place by a regulating appliance.

Dr. S. Bauer, of Budapest, tells in a paper on "Argentum Nitricum," the good qualities of silver nitrate on softened dentine of deciduous teeth, and also in hypersensitiveness from erosion or decay. The writer tells how to use it in the treatment of teeth affected with pulpitis acuta septica. The objection to this, is that it leaves the tooth very much discolored, and would not answer for any case anterior to the molars.

The Dominion Dental Journal for December has only one original paper, "Pulp Canal Filling," by Dr. M. G. McEllimeny, of Ottawa, Canada. The author makes a plea for thorough preparation of root canals, gives instruction in the making of piano-wire broaches and then says he fills roots with silver. He is not particular about moisture being present, rather prefers to have the root filled with a liquid medicinal agent, and forces silver (?) to

the apex with a blunt-ended steel probe. In cases of chronic alveolar abscess he fills the roots with gutta percha and chloroform in the usual way.

The British Journal of Dental Science for January has a continuation of Mr. E. W. Roughton's paper on "General Pathology and Surgery for Dentists." As the paper is copyrighted we cannot make any extracts from it. Mr. Harry Rose, L. D. S., has a paper on "Dental Mechanics," which is also copyrighted. Each of the above papers are good, substantial reading, and both are parts of a series on the same subjects.

A paper on "Abscess in the Antrum," by Mr. F. A. Maskell, treats of the causes of abscess, the diagnosis and treatment. It is orthodox, and as it is intended for the use of dental students, it is unnecessary to epitomize it. The leader is devoted to the extraordinary position taken by the *Pall Mall Gazette* in criticising advertisers and offering them an opportunity to reply to such criticism. As the conditions surrounding the practice of dental surgery in Britain so differ from those in the United States we cannot say more than this: The agitation will acquaint the public with the claims of dentistry to public recognition and support—legitimate dentistry most of all. One of the correspondents of the paper—a physician—went so far as to say that a medical man should first be consulted as to the needs of attention to the teeth, and that a medical man was best qualified to recommend a dental surgeon to a layman. The editor does not agree with this view. Taken as a whole, the "leader" is somewhat ironical as to the benefit to the dentists of lay meddling in dental affairs.

A report of the meeting of the Odontological Society of Great Britain disclosed that a new alloy, "nurium," was presented by Mr. Geo. Brunton, and Mr. C. S. Tomes showed several slides of vasodentine from the hake and other fishes. Mr. Mummery exhibited several sections from human teeth with iron and tannin impregnations; Mr. Hopewell Smith, section from a round-cell sarcoma in connection with the peridental membrane of upper molars.

The other proceedings were devoted to the exhibition of new methods of taking impressions, and Dr. Joseph Walker exhibited an electric mouth mirror to prevent condensation on the surface of the glass when introduced in the mouth. The whole number is rather interesting and quite valuable to the general reader.

In the January number of the *Items of Interest* the first article is on

PORCELAIN DENTAL ART,

by Dr. W. A. Capon, of Philadelphia. He seems more enthusiastic and meets with better success than appears to be the case with the Chicago gentlemen who discussed the same topic before the Chicago Dental Society he admits, however, that making porcelain fillings is the most difficult, in fact more difficult than any other filling in use. He describes the usual method of taking impressions, fitting, etc., and then speaking of the cement used, says: "After removing excess cement, hot air should be applied, and the operation finished by covering the whole work with paraffin, wax, chloro-percha, sandarac or rubber varnish, leaving trimming till a later sitting when the cement will be thoroughly hard."

Then follows a report of the Southern and American Dental Associations. Dr. Geo. H. Chance, of Portland, Ore., speaks of the relationship between

DENTISTRY AND MEDICINE.

He says: "Dentistry, like general medicine, is here to stay; both are needed, and both are without doubt intended as instruments in the hands of the properly educated for the relief of physical suffering; and so far as scientifically educated, limited human foresight can go, are also intended to be used for the prevention of disease."

The remaining articles in this issue have appeared in other journals.

The American Journal of Dental Science for January contains an article on Dental Education, by Dr. R. B. Weiser, quoted from the proceedings of the Colorado State Dental Society. He says regarding the earliest history of dental laws:

"England had a law that had some reference to dentistry—or rather to the extraction of teeth—enacted in the thirty-seventh year of the reign of Henry VIII. By the third section of this act, any one who uses barbery or shaving in the city of London—its suburbs, and within a circuit of one mile—is forbidden occupying any surgery, letting of blood, or any other thing belonging to surgery, drawing of teeth only excepted. (Henry VIII was born in 1491; he began his reign when he was 18 years old,

ruption of the flow of saliva. Another important point is the effect that the extraction of certain teeth will have upon the formation of the maxillary, not only as regards the individual, but also the effect upon the future generation."

In presenting digests of the different dental journals it becomes necessary to omit notice of matter, which, although good in itself has appeared elsewhere, otherwise repetition and confusion will be the result. In the January number of the *Southern Dental Journal and Luminary*, the only article which has not previously seen the light of day is one by Dr. I. N. Carr, of Tarboro, N. C., on the preparation of

PYROZONE.

In opening the tubes he suggests for the avoidance of explosions that before opening the tube it should be placed on a block of ice for a few minutes and held in a napkin while the end is being ground off. Transfer unused amount to a ground-stoppered bottle, first coating the stopper with vaseline, then pour melted paraffin over it.

The Dental and Surgical Microcosm is a quarterly publication devoted principally to the subject of anæsthesia. Its January number fiercely attacks the action of the American Dental Association for celebrating the discovery of anæsthesia and giving credit to Horace Wells. It also contains an able article on the "Psychological Aspect of Hypnosis," by Dr. Wm. Romaine Newbold, of Philadelphia, and comments upon the new face-piece suggested at the Dental Congress by Dr. Fillebrown, of Boston. In an original article on "Anæsthetics and True Anæsthesia," the editor gives the credit of discovery to some one who lived before the time of Herodotus and as near as it is possible to determine the credit for the discovery of the anæsthetic properties of nitrous oxide is given to Sir Humphry Davy.

The *Zahnarztliches Wochenblatt*, of January 19, contains an article on third dentition by Dr. Albert H. Mebes, of Berlin, Germany. He takes up the subject by quoting a number of German authorities on this point, and asks the question whether it is possible to prove that cases of third dentition are ever actually true and indisputable. He finally describes a case, which he presents to the readers of the paper with considerable pride.

The case in question was first published in the *Dental Review* of

which would be in 1509; consequently the thirty-second year of his reign would be 1541.) I am still of the opinion that the dental law of Alabama was the first genuine dental law in the world."

He then gives a synopsis of the dental laws of the various states and foreign countries, and refers to contemplated changes in the Colorado dental law.

In an article on

CALCIFICATION OF DENTAL PULPS,

Mr. A. Rose of Petersborough, Ont., says that, "A strong reason for deeming this peculiar formation of calcific matter in the pulp chamber physiological rather than pathological as to origin is the fact that the experience of almost every observer of this formation agrees in the statement that it is found most frequently in well-developed, well-nourished and usually plethoric individuals. I have often acted upon this assumption, and on discovering one, or perhaps two, of the canals of the superior molar closed to the finest broach, and having been attacked with caries which penetrated the tooth to the position of the pulp chamber originally, the tooth had, in the words of the patient, "just rotted away and never ached at all," I have cleaned the remaining root canals, if any, and after thoroughly antiseptizing with iodoform and eucalyptus oil, or aristol and eucalyptus oil, which is less disagreeable, or perhaps with bi-chlor. of mercury, 1 to 500 or 1 to 1,000, have dried and filled just I should have filled any ordinary case."

In the January number of the *Dental Headlight*, omitting the "Selections," we find among the original communications an article by Dr. W. J. Morrison, of Nashville, Tenn., on

EXTRACTING,

in which he states the following advice to be given to the prospective M. D. or D. D. S: "They should be impressed with the function of the teeth, in the proper mastication and insalivation of the food; for the first and most important step in digestion is the proper insalivation and preparation of the food for the gastric juices. Students should be taught that the extraction of one tooth is the functional loss of two.

Then, attention should be called to the vital necessity of the remaining of the teeth to preserve the dental arch intact, by illustrating the tipping forward of the other teeth, and also the inter-

electrozone are recommended not only for that purpose, but also for sterilization in pathological cases. An article by Dr. Henry Barnes of Cleveland, Ohio, on

SEPARATORS,

in which the invention of Dr. Perry of New York receives the highest praise. It also appears in this issue.

In the *Dominion Dental Journal* for January, Dr. Relyea gives the following formula for a remedy for

NEURALGIA.

Oil of peppermint	1 ounce.
Tr. of Aconite root	½ "
Chloroform	½ "
Alcohol	½ "

Apply externally with a camel's hair brush.

The *Odontographic Journal* for January contains an article by Dr. R. H. Hofheinz of Rochester, N. Y., on

BACTERIOLOGY AND DENTAL DECAY.

He presents a classification of bacteria, and names the following as the important causes assigned for the decay of the teeth:

1. Depraved juices accumulated in the teeth.
2. Disturbances of nutrition.
3. Inflammation.
4. Worms.
5. Putrefaction.
6. Chemical dissolution.
7. Parasitic theory.
8. Electrolytic decomposition.
9. Diverse Causes.
10. Chemico-parasitic influence.

The various theories are then gone over, with the following summing up:

"Dental decay is a chemico-parasitical process, consisting of two distinct stages:

1. Decalcification or softening of the tissue.
2. Dissolution of the softened mass.

Having mentioned the process of fermentation in the mouth, I may add that the acid is chiefly derived from particles of amylaceous and saccharine substances which lodge in the retain-

August, 1894, and appeared to us at the time not sufficiently authentic to warrant the editorial notice it received. Dentists are frequently the originators of the most ridiculous statements. These are taken up by the laity, because some dentist is the father of them, and are circulated from mouth to mouth. The non-saving of children's teeth, the general neglect of the permanent third molar, the refusal to have roots extracted while in an abscessed condition, and many other similar fallacies have their origin in the brain of some dentist who is endowed with a vivid imagination or lacks education. With all due respect to the gentleman from West Plains, Mo., the case of third dentition described by him is not at all authentic. Almost everyone has seen the eruption of retarded or supernumerary teeth, nor can everyone be absolutely positive as to the extraction of all teeth or roots of teeth. The following are the only conditions under which a case of third dentition can be considered beyond dispute:

1. Positive proof that the individual has erupted and shed twenty temporary teeth.

2. Positive proof that the same individual has erupted thirty-two permanent teeth, and that the same number of teeth, each with its usual complement of roots, have been removed from the mouth.

3. The appearance at a later period of one or more teeth, whose anatomical characteristics place them out of the range of supernumeraries.

In the January number of the *Ohio Dental Journal*, Dr. L. E. Custer of Dayton, Ohio, describes an

ELECTRICAL FURNACE

for the fusion of porcelain, his own invention. This is, without doubt, one of the most important dental inventions of the last decade. The discussion following this paper shows that the members of the Ohio State Dental Society duly appreciate the subject. A committee was finally appointed to procure a suitable medal to be presented to Dr. Custer as a testimonial of appreciation for the valuable appliance invented by him. Dr. L. P. Bethel of Kent, Ohio, read a paper before the same society, relating some experimental tests with

STERILIZING AGENTS,

principally looking toward finding some suitable chemical agent for sterilizing instruments. Formalin, sodium peroxide and

ing places; these undergo fermentation. The fermentation of carbohydrates produces chiefly lactic acid, and this is the chief destroyer of the tissue in its first stage. The second stage of caries, the dissolving of the softened dentine, is caused by bacteria."

The most noticeable feature of the January number of the *Dental Review* is the

VALEDICTORY OF THE EDITOR,

Dr. C. N. Johnson, who took the editorial management a year ago. Dr. Johnson's literary labors are too arduous to permit him to give the necessary time to the exacting duties of a dental editor, and, under these circumstances, he deserves credit for frankly stepping down and out. There seems, at present, to be no official head to the *Review*. An editorial on "Apathy in Dental Societies," by Dr. Geo. J. Dennis, one of the staff, is timely and to the point. He calls attention, among other matters, to the apathy of members, absence of interest in the work of the society, and the capability of the essayists. The leading original communication is by Dr. W. Xavier Sudduth, of the University of Minnesota, Minneapolis, and is entitled "The Present Scientific Status of

HYPNOTISM."

It is an able exposition of this phantom-like boon which is just now enjoying a truly western boom. Attention is called to the existence of the skepticism, which the preceding sentence almost discloses, and it is ably shown that opposition and antagonism met almost every step of progress in the advancement of science. The state of hypnotism is defined as simply a condition of "induced sleep," sweet, natural, uninjurious sleep, induced and prolonged. Statistics are ably quoted to show that hypnotism is not so uncommon a state as it is generally thought to be. At the next step the doctrine of suggestion is treated in a manner convincing to those who have not given the subject much attention, and it is shown how suggestion in many other human acts is an important factor. And if this suggestion is used for therapeutic purposes, we have "Suggestive Therapeutics." A large number of cases of cures of hystero-epilepsy, melancholic delirium, hysterical insanity, neuralgic pains, persistent rachialgia, arthralgia, partial left hemiplegia, and a host of others are cited,

from the pens of able and responsible European medical practitioners. The writer ably sums up in the following words:

"In conclusion, I desire to say that I am a firm believer in the value of suggestion in medical and dental practice, and that experience based upon years of scientific study in the phenomena of function leads me to earnestly advocate the use of hypnotic suggestion in the treatment of certain forms of disease."

Dr. Thomas L. Gilmer describes two simple methods of treatment of

FRACTURES OF THE LOWER JAW.

Head of boy was caught by descending elevator, lower jaw fractured at each angle, also on line with second bicuspid on left side. Much displacement. Disinfected with 3 per cent. solution of pyrozone and oil of cassia in water.

About the cervical portion of a number of teeth on each jaw, anterior and posterior to the compound fracture, was placed soft iron wires of sufficient length. These wires were tightly twisted to fit the teeth closely. The teeth of the fragments were brought into articulation with the teeth of the upper jaw, and the wires of the lower secured to those of the upper teeth, bringing the lower jaw firmly to the upper. To overcome the pull on the teeth by muscular strain, the bandage was applied loosely for twenty-four hours, when it was removed, as by this time muscular contraction was so far overcome as to render the bandage useless.

An excellent syringe for feeding the patient is that employed by the surgeon as a powder blower, but any bulb syringe with a sufficiently large nozzle may be used.

ANOTHER METHOD.

The other method of treatment is by splint. An impression is taken of the teeth of both jaws. If the fragments of the lower jaw are out of place, no attempt is made to hold them in place if they are displaced readily by muscular action. Casts are now made from the impression, and if the lower alignment of the teeth does not permit exact original articulation with the teeth of the upper cast, the lower is sawed in two on the line of fracture and the cast reconstructed by articulating the occlusal surfaces of the teeth of the two pieces with the occlusal surfaces of the teeth of the upper cast. The two pieces of the lower cast are now secured to each other by the application of a little soft plaster.

The teeth of the cast of the lower jaw are reproduced in Mellotte's metal and on these is swaged a plate of German silver, silver or gold. This plate should extend down to cover at least two-thirds of the length of the teeth. Its length should be sufficient to cover several teeth anterior and posterior to the fracture. This splint should be cemented to the teeth with phosphate of zinc. This method is cleanly, easily made, and permits the mouth, if there be no other injuries of the bone, to be opened and closed at will.

The journals have been full of articles relating to the semicentennial of anæsthesia. The *Western Dental Journal* for January publishes Dr. Garretson's address. It also has extracts from an article on "Hallucinations and Delusions." These extracts are published because of their bearing upon the subject of Hypnotism, which is at the present time engrossing the attention of the profession. A paper by Dr. C. S. Lane, of Oakland, Cal., is republished from the *Pacific Coast Dentist;* it is entitled, "The Dentist: His Relations to His Patients and to His Brother Practitioners." Among much trite and appropriate advice, worthy of emulation, he says: "The same law that requires us to be true to ourselves, requires us to be true to our patients, as worth and nobility of character always react, enriching others as well as the possessor; hence, if we are what we ought to be, and what we may be *in ourselves*, we are so much the more to our patrons."

From the *British Journal of Dental Science* Sir Walter B. Foster's after dinnner speech at the Annual Dinner of the National Dental Hospital, of London, is reproduced in full.

Sir Foster, at length, covers the field so often trodden by laymen. He also refers in complimentary terms to the scientific achievements of such men as Tomes and Cunningham, and expresses the hope that some day the profession may be represented in the Medical Council by a dentist. Dr. Bonwill's article on filling children's teeth is also reproduced. The Minnesota State Dental Association has taken up as a topic for investigation the subject of Pyorrhœa Alveolaris; a committee of five having the matter in charge will furnish blanks to any practitioner who may desire to add the knowledge gained from his experience to the general store. A list of contributors to dental literature on this topic is also published. For blanks apply to Dr. W. P. Dickinson, Dayton Building, Minneapolis, Minn.

The International Dental Journal, January, 1895: The papers of Drs. Thos. Fillebrown and James E. Garretson deal with the part played by Horace Wells in the discovery of Anæsthesia and the benefits to mankind of this discovery. As so much has already been published on this subject we will not condense the papers. The Chicago *Tribune* for Saturday, January 5, has the following:

"Wells not the man,"—"Hartford dentist not the discoverer of Anæsthesia.

This 'end of the century' period is characterized as strongly by a mania for celebrations of anniversaries of all sorts as by any other one thing which might be mentioned. The most of these celebrations mark the anniversaries of well defined and generally undisputed historical events. A striking instance of a contrary nature has lately appeared. In itself it was unimportant. But it is a single gun in the re-opening of one of the fiercest conflicts in the history of the science of medicine.

December 10 last, there was held in Hartford, Conn., and the following day in Philadelphia, what purported to be the celebration of the fiftieth anniversary of the discovery of anæsthesia, which willl stand forever as the peer of all the wonderful triumphs of medicine. Horace Wells, a dentist of Hartford, in the memory of whose alleged discovery a monument in that thrifty nutmeg capital bears a certain kind of witness, is the man in whose honor the celebration was held.

Under a Boston date of December 28 the following press dispatch was sent out last week:

The semi-centennial of the discovery of anæsthesia was celebrated last night at Young's Hotel by the Harvard Odontological Society. After dinner Charles A. Brackett, of Harvard, read a paper on the introduction and use of anæsthesia, which was afterwards discussed by the members. Among the invited guests were the Rev. Alexander McKenzie, Cambridge; Dr. Charles F: Withington, Boston; Dr. Taylor, Hartford; Profs. Fillebrown and Brackett, of Harvard.

ARRAYED AGAINST DR. HOLMES.

Were Dr. Oliver Wendell Holmes, the most distinguished physician ever connnected with Harvard University, alive today he would probably have read the above with considerable indignation, for he has himself testified to the falsity of the premise which gave it birth.

WHAT WELLS DID NOT DO.

Simmered down, Wells' claims seem to amount to an assertion of knowing there was something to be found, but never finding it, a pretense of proprietorship in the pocketbook that he passed without seeing, but which another did see, an effort to obtain the credit for the discovery of a new planet which he thought he saw in the heavens, but never happened to speak about until another astronomer had definitely established its existence. Of the many who lay claim to part of the honor in the discovery of anæsthesia, Wells would appear to rank, by any one of many standards, pretty far down as to precedence.

Dr. Morton pursued his experiments in the retirement of the farm for a period and then went to Boston, where he became constant in his attendance at the clinical lectures and operations in the Massachusetts General Hospital.

Although Sir Humphrey Davy had in 1799 described 'laughing gas' and its effects Dr. Wells, the Hartford dentist, one day thought he had himself discovered it and he proclaimed to the world: 'A new era in tooth-pulling!' After a few experiments—upon which rest his claims solely—he also went to Boston in order to obtain something like an official indorsement of his methods and gave an exhibition of 'painless tooth-pulling.' Dr. Morton assisted him. Dr. Wells administered the gas and extracted the tooth, but the patient, instead of succumbing to the influence of the laughing gas, screamed with pain, to the discomfiture of the Hartford dentist and the derision of the spectators.

Wells returned to Hartford discouraged, told his friends there was 'nothing in it,' and abandoned his experiments. More than fifteen years elapsed before his 'new era of tooth-pulling' became a reality. Yet he appears on the scene a long while after to dispute before Congress Dr. Morton's right to a patent and with others to rob this public benefactor of his just deserts.

If the dentists of Hartford and Boston desire to celebrate the discovery of 'laughing gas' they might with better reason, it would seem, postpone the affair until 1899, and have a centennial in honor of Sir Humphrey Davy."

The whole article is an attempt to bolster the claims of Morton. Any of our readers who may have any new information to impart on this subject will confer a favor by sending it at once.

The paper on the "Relative Penetrating Power of Coagulants,"

by Dr. James Truman, has the double distinction of being published also in the *Dental Cosmos*. The paper, with numerous experiments, was prepared to show the penetrating power of coagulants rather than their diffusion. After taking finely attenuated tubes of glass and partially filling them with albumen and glycerine, various coagulating and non-coagulating agents were applied to the surface of the mixed liquid in the tubes. A photograph of the coagulation is shown to demonstrate the degree of penetration. (As glycerine is not found in the pulp of a tooth or the protoplasmic contents of the tubules, we fail to see anything conclusive in these experiments). The essayist did not succeed in diffusing chloride of zinc through the root of a tooth at all. He says that it will not pass through the cementum. (So far no experimenter has demonstrated the passage of a coagulating agent through the side of the root of a tooth without first depriving it of its coagulating property).

The January number of the *Dental Cosmos* contains an article read before the Homœpathic Medical Society of the county of New York, by George Howe Winkler, M. D., D. D. S., in which he discusses the disease of the teeth generally known as erosion. The cause of this destruction of the teeth is not yet generally understood, but he describes it as a diseased condition of the mucous glands of the gingival borders of the gums, and says that in the exercise of their power of elimination these glands throw out a poisonous secretion which in time poisons the glands themselves. As a remedy he claims a great deal for creosotum, and gives instances where he has used it, administered internally, in powder, pellet and liquid form. The writer ends the article by saying he believes that fifty per cent. of the decay of young people's teeth is absolutely preventable.

In the same journal we find an article read before the First District Dental Society of New York State, by Sidney S. Stowell, D. D. S., entitled, "Local Exercise and Dietetic Influence upon the Teeth."

The writer emphasizes the value of foods which require a great deal of mastication for their effect on the teeth, and cites instances showing that where solid foods have been the diet, the teeth are strong and free from decay, while where foods that require little mastication have been eaten, the teeth are decayed and often loose in their sockets.

He also gives instances of children brought up on milk foods having badly decayed teeth, while those who were given hard crackers or something similar to chew on have strong, well-formed teeth.

He closes the article by saying that the marked deterioration of human teeth dates from the time when finely-ground flour came into common use, and that the best preventive of decay is consumption of foods which require much mastication.

The Dental Cosmos, November. In the Transactions of the Southern Dental Association we find a paper was read by Dr. G. J. Friedrichs entitled "Dental Caries and Popular Fallacies," the synopsis of which fails to enlighten the reader as to the purpose of the author.

He refers to the paper by Drs. Underwood and Milles (1881), whose conclusions were "that caries is absolutely dependent upon the presence and proliferation of organisms." * * * He goes on to say that since then other investigators in the same field have confirmed these views (perhaps he meant this was a "popular fallacy," as he continues), yet notwithstanding this plausible theory, which accounts for the general cause of caries of the teeth, there still remains a "missing link" in the problem of dental caries which the germ theory does not solve, and that is what is called "Dental Erosion," a disease where the wasting of the tooth substance takes place without apparent cause." * * *

"The singular peculiarity to be noted is that it attacks both the enamel and dentine, while against ordinary caries the enamel is a protection."

The discussion failed to make any more clear the relation of the paper to its title, and was neither particularly instructive or interesting.

In a paper on "Hygiene," by Dr. R. R. Freeman, he said in closing "that in the future the services of the dentist would be prophylactic or preventive rather than curative."

God speed the day! But such a prophecy is much too rosy for the present generation to count upon.

Dr. Hewitt, of Chicago, as usual demonstrated the use of chloroform for the purpose of producing partial anæsthesia.

This, happily, brought out the regular earnest protests against Dr. Hewitt's claims of the absolute safety of chloroform under any circumstances. No intelligent body of dentists today would indorse any such claim.

In the proceedings of the American Medical Association Section on Oral and Dental Surgery, is an abstract of a paper by Dr. C. L. Goddard, of San Francisco, entitled "A Study of the Lateral Incisor," which showed earnest study of, and familiarity with, the subject, both from the literature and from his personal observations.

The writer expressed his convictions "that excepting the third molar the lateral incisor is out of line more than any other tooth." The cause for this he attributes to the narrowness of the inter-maxillary bone, which also, he says, "will account for the sharp nose, narrow nostrils and small nasal cavity, noticed in so many persons."

"Is nature striving to create a new order of beauty, by gradually decreasing the size of the inter-maxillary bone, and thus narrowing the anterior portion of the face?" The "*lessening of the inter maxillary bone, would, in some cases, have the effect of crowding the lateral out of position as shown by these cases of irregularity, and in other cases of suppressing the lateral altogether.*"

There was no discussion, properly speaking; Dr. Bonwill said he could not discuss it unless the audience would follow him for three hours—which, it is presumed, they did not show any eager desire to do, as he did not pursue the matter. Dr. Goddard, in closing, desired to bring out the point which he endeavored to make in the paper, that "decrease of the width of the maxillary bone may produce both the loss of the tooth (lateral incisor) and irregularities in its position.

A paper by Dr. Vida A. Latham, of Chicago, entitled "Some Pathological Notes on Neoplasms of the Maxilla," was read by Dr. Dean. The paper showed familiarity with the subject, but elicited no discussion.

A paper by Dr. A. E. Baldwin, of Chicago, entitled "Random Thoughts on Our Specialty," contained some excellent suggestions.

He emphasized the necessity for truly scientific study and of only placing the results of such work before the profession when it can be clearly demonstrated. He also urged independence of thought in members of the profession, that they may not accept the *ipse-dixit* of authority without investigation.

Dr. Talbot in closing the session congratulated the section on the high character of the papers presented; and incidentally we

learn from him that he was "one of the originators of the section which was instituted for the purpose of educating the medical profession in dental subjects. * * * He believed that we would in fifty or a hundred years, be recognized as an important part of the medical profession."

Some of us hope that consummation may be reached in a somewhat shorter period.

In proceedings of the "Midwinter Fair Dental Congress" is an abstract of a paper by Dr. Earl D. Eddy, of San Francisco, in which he advocates the use of "Pental" as an anæsthetic. He "recognizes the elements of danger in all anæsthetics," but says "that pental is less likely to produce these danger signals than any other substance heretofore used, is certain to his mind, as the result of experience with pental, gas, chloroform and ether. The chief advantages of pental are (1) the absolute certainty of a painless operation; (2) rapidity; (3) immediate and complete recovery of the patient; (4) simplicity.

A paper by Dr. A. C. Hart, of San Francisco, entitled "The Pathology and Successful Treatment of Periodontal and Endodontal Tumors, commonly called Alveolar Abscess and Fungous Growth of the Pulp," urges the adoption of this new nomenclature, but it is doubtful if such a change is likely to occur very soon. He claims that the term "Alveolar Abscess" is a misnomer. He seems to have fallen into the not infrequent habit of speaking of the "Alveolus" as a tissue or structure, apparently forgetting that it is only a hole into which the roots of the teeth are adjusted. He says "the abscess * * attached to the end of the root of a tooth has no connection with the alveolus. * * It is never a growth from the *surface* or *substance* of the alveolus as some assert."

The universal understanding of the term "Alveolar Abscess" is that the abscess is located within the alveolus, simply defining its locality without defining the tissues involved. These are the only points in the paper challenging attention, and the value of the paper as a whole may be inferred from these extracts.

There is nothing further reported in the transactions that is new or interesting.

BOOK REVIEWS.

Transactions of the World's Columbian Dental Congress, Chicago, August 14, 15, 16, 17, 18 and 19, 1893.

In two volumes. Edited for the General Executive Committee by A. W. Harlan, A. M., M. D., D. D. S. Assisted by Louis Ottofy, D. D. S. Committee on Publication: A. W. Harlan, A. O. Hunt, Louis Ottofy, Chicago. Press of Knight, Leonard & Co., 1894. Pp. LIV. 1068.

The appearance of these two volumes marks the completion of the Herculean task which had its official origin in resolutions adopted at the meeting of the Southern Dental Association, which met at Atlanta, Georgia, July, 1890.

No man can have a full knowledge of the Congress until this report is before him—for it was impossible to be informed at the time of the proceedings in the different sections. Then, too, the most assiduous member could not escape the allurements of the World's fair and the extraordinary opportunities it afforded for fellowship.

For the first time the profession is able to pass judgment upon the work, and to know whether the promises held out by the promoters were fulfilled. A candid review of the transactions, as here published, will convince the most incredulous that even more than was hoped for was attained. It would seem that the mere bringing together of dentists so far removed, both geographically and scientifically, was ample compensation for all the effort put forth. To say that this fact has not benefited the profession for all time is to lose sight of one mighty truth. The list of members, representatives of the profession all over the world—albeit many well-known names do not occur—eloquently speak of its far-reaching influence.

But of the social features of the Congress, the means it afforded for interchange of ideas, renewals of old friendships and formation of new ties, the printed transactions can give little evidence.

The disconnected manner in which many of the papers reached the profession through the monthlies, gave some idea of the scope of the scientific work, but destroyed the ensemble, judging the meeting as a meeting. But through that medium we were all made familiar with the salient features.

A not over vigorous censorship has permitted the presentation of the usual number of weak or undigested papers—a state of affairs perhaps unavoidable considering their diverse sources—but almost every paper will be read with interest, if not instruction, and although space will not permit of detail some of the more noteworthy contributions may here be pointed out.

In the general sessions: President Shepard's Inaugural Address, Dr. Zsigmondy's Congenital Defects of the Enamel. Dr. Andrews' Development of Enamel. Dr. Whitney's Teeth of Ancient Hawaiians. Dr. Cunningham's Treatment of Irregular Teeth by Luxation.

In Sections: Dr. Bonwill's Hypothesis. Dr. Guilford's Homology of Teeth and Hair. Dr. Abbott's Teeth of Lower Jaw at Birth. Dr. Caracatsanis' Paper on Pyorrhoea and the discussion thereon. Dr. Stewarts' Experiments with Bichloride of Mercury. Dr. Viau's Physiological Action of Cocaine. Dr. Cryer's Surgical Engine and its Uses. Dr. Brophy's Surgical Treatment of Palatal Defects. Dr. Schreier's Potassium-Sodium Treatment of Canal Contents, Dr. Ames' Oxyphosphates. Dr. Whitefield's Galvanic Action between Gold and Base Metal Fillings. Dr. Cattell's Operative Technics. Dr. Jackson's and Dr. Case's Orthodontia. Dr. Godon's Immediate Prosthesis. Dr. Black's, Dr. Newkirk's and Dr. Kulp's Nomenclature and Dr. Cunningham's Dental Hygiene.

These papers and others brought out excellent discussion which is quite readable and manifested a considerable interest.

The report of the clinics conveys no adequate idea of the tremendous interest taken in them nor of the multitude of matters presented.

The work in some of the sections was by no means exhaustive or comprehensive, but all considered was eminently satisfactory.

As books, the transactions are well planned and executed. There are 1068 pages—a huge task for the committee who had charge of the editing and publication—requiring an enormous expenditure of time and energy of men who already had their share of professional cares, and which unfortunately receives small appreciation and too frequently hard criticism. The transactions of the World's Columbian Dental Congress are entirely worthy a place in the historical literature of the profession.

J. W. WASSALL.

News Summary.

Have you used cassia and iodine?

Did you ever dust a cavity to see if it were dry?

What do you do when you find a hole in the side of a root?

Some samples of "electrozone" are coagulators of albumen.

The Odontological Society meets at the Athletic Club monthly.

Dr. W. X. Sudduth paid a flying visit to Chicago in January.

A file cuts better than a single number; there is more in it.

Dr. J. M. Browne, late Surgeon General of the navy, is dead.

Dr. H. E. Pope, of Detroit, was killed recently by a professional nurse.

Send in your papers for publication and give them a larger circulation.

Wonder if the late Professor Blaney will not turn over and sigh when he spells his name in the *Jour. Am. Med. Ass'n* for December 15.

The Odontographic Society holds its meetings at the Briggs House second Monday of each month.

G. V. I. Brown, D. D. S., of Duluth, attended the last meeting of the Chicago Dental Society.

Why do we not see a "Stoke's" clamp in this country of ours—a hinged clamp that does not pinch or mar the tooth ?

Bichloride of mercury when dissolved in 1-10 Boroglycerine, is no longer a coagulator of albumen.

A pulp may be covered with gum dammar, then cover the gum with an oxysulfate of zinc—when hard, fill the tooth with what you like.

Dr. Thos. E. Weeks, of Minneapolis, Minn., spent a few days in Chicago, recently, recuperating from his arduous labors in the Minnesota Dental School.

Dr. A. W. Haidle, of Detroit, was in attendance at the meeting of the Delta Sigma Delta Fraternity in January.

It must be said to the credit of the dentists that they are doing all they can to keep the gold in this country.

The new building of the dental department of the University of Iowa has been finished and turned over to the authorities.

In consequence of the cholera scare the world over is richer in vitality by 17 per cent. Improvements in sanitary matters always follow the scare of endemics and epidemics.

The Dental Society of Holland has appointed Messrs. J. J. Grevers, John E. Grevers and N. J. Greter, who, in conjunction with the presiding officer, shall determine the feasibility of establishing a dental school in Holland.

We have not seen Dr. Hewitt's new formula for making copper amalgam, but we hope he will soon publish it for the benefit of those dentists who need to and do use a plastic filling.

Dr. W. D. Haggard, Jr., made our report of the Horace Wells memorial celebration in the January issue. Dr. Haggard is doing some post-graduate work in genito-urinary diseases in Philadelphia.

It is safe practice in all pulpless bicuspids, with long cusps, to shorten them so that liability to split is not ever present. This may not always be esthetic, but it is better than losing half of the tooth and a portion of the periphery of the root.

Recently we have used one to two per cent of nitrate of silver in water to arrest chronic discharge from the Antrum—with success. In one case of two years' standing, washing the cavity twice daily for three weeks, caused the discharge to cease.

The Alumni Association of the Chicago College of Dental Surgery gave a monster clinic the 9th of January. A very large number of visitors were present. Dr. W. G. A. Bonwill, of Philadelphia, operated during the day.

Use liquid cosmoline to oil the joints of forceps, and other jointed dental instruments likely to grow rusty when in use. This will prevent it. We use it in gun barrels, syringes and also on broaches to keep the dust away. It is good for chapped hands, lips, etc. It does not absorb moisture.

Dr. C. N. Johnson has resigned the editorship of the *Dental Review* to devote more time to general literature and his other pressing professional duties. It is not likely that a new editor will be announced for some time, as the editorial staff is so large that the interests of the journal will be well taken care of. The January issue has appeared, shorn of some of its features, but looking quite as attractive as of yore.

In the friendly struggle now going on in France the stomatologists are getting the worst of it. There are two dental schools in Paris, both well equipped and well manned, professionally. The stomatologists led by Magitot point to their swelling chests and when speaking of education say as one more famous said: "*L'etat c'est moi.*" The founders and teachers in the schools say, with justice, that the schools are a fact, that they should be utilized, which is scouted at by the stomatologists. They will build a new system, it will bear the earmarks of stomatology on it, or they won't play, etc. As we, in our sanctum sit, we see it all. We could settle the fight but hold, we have not been asked to do it; this is no Japanese-Chinese show, neither side will capitulate. A little later perhaps material concessions will be made, and then the dental schools of Paris will become famous. Teachers will be sought from other lands and no dental education will be complete without a pilgrimage to Paris, London and Berlin. So mote it be.

ROOTS—WHAT SHALL WE DO WITH THEM? is the title of a paper recently published in England. Well, crown them, if possible, if not plant them deep—perhaps they will come up in the spring! Roots, how succulent some are, tubers and the like, roots—the business portion of the life of a porker, roots—the starting point in a family tree, roots—the source of income for many dentists, roots—covered with *zahnstein* fall out, roots—not filled give pain, roots—septic cause abscesses, some roots—are difficult to fill, roots—should be

sterilized, roots—uncovered are sensitive, roots—covered up or in, cause neuralgia, roots—exostosed cause pain, roots—absorbed fall out, roots—split must be taken out, roots—are not storehouses for broken drills or steel, roots—should not be filled immediately, unless encysted or pulp fully removed, roots—should not be drilled out, save in rare instances, roots—stained with Ag. N. O. 3 may be cleaned with iodin tr. then ammonia spts., roots—necrosed must be cut off or extracted, roots—perforated on the side must be filled with lead, tin or gutta percha, roots—soaked with cassia become yellow, roots—filled with cotton are not safe, roots—filled with paraffin, shellac or gutta percha are safe, roots—should not be filled with gold, or copper wire or wood, roots—root, roo, ro, r—oh! ! ! !

One of the crying evils of clinics is the man who has something to sell. We think the one who has something to sell should be placed in a room by himself and not be allowed to force wares on spectators who wish to learn something. A small clinic is generally the best—one operator to about eight spectators, then let 'em move on. At the New York clinic all the operations were by number, so no difficulty was experienced in finding any one at any time.

The St. Louis Dental Society elected the following officers for this year: President, Dr. Walter M. Bartlett; Vice-President, Dr. M. R. Windhorst; Corresponding Secretary, Dr. F. F. Fletcher; Recording Secretary, Dr. P. H. Morrison; Treasurer, Dr. A. J. Prosser; Publication Committee, Drs. L. A. Young, P. H. Eisloeffel and T. L. Pepperling; Committee on Ethics, Drs. Wm. N. Morrison. P. F. Helmuth and O. H. Manchard. Please publish in next issue of the DIGEST and oblige. Yours truly,

F. F. FLETCHER, Corresponding Secretary.

TO THE EDITOR:

Dear Sir—In looking over the DENTAL DIGEST for January, 1895, on page 62 you have noted an instance of chloroform narcosis being produced on a sleeping child and one tooth extracted. Child awoke two hours afterward.

I would say, five years ago J. C. Cook, M. D., and myself produced chloroform narcosis on a child eight years of age and extracted two six-year molars and three temporary teeth, the child remaining unconscious of what had taken place—slept quietly all night. This method has been a common practice with us for eight or nine years.

Yours truly, J. E. HINKINS.

NOTICE.

The Chairman of the Executive Commttee of the Horace Wells Fiftieth Anniversary Celebration announces that the papers read by Profs. Fillebrown and Garrettson at the meeting, and the speeches delivered at the banquet, have been prepared for publication in the proposed souvenir volume and will be issued upon the receipt of a sufficient number of subscriptions to cover the expense. Price, $1.50. The undersigned will receive subscriptions, receipt for same, and deliver the book upon completion.

J. D. THOMAS, Chairman.

FIRST DISTRICT DENTAL SOCIETY, S. N. Y.

An *all-day* clinic will be held under the auspices of the First District Dental Society, S. N. Y., on *Tuesday, March 12th*, at the N. Y. College of Dentistry, 205 East Twenty-third street, N. Y.

A cordial invitation is extended to all members of the profession to be present. Any one desiring to clinic or exhibit anything of value, is requested to communicate with the committee.

JAMES G. PALMER,
Chairman Clinic Committee,
18 West Thirty-fifth street, N. Y.

NECROLOGICAL.

WILLIAM O. KULP, D. D. S.

Died at Davenport, Iowa, January 12, 1895. William O. Kulp was born at Wadsworth, Ohio, September 19, 1836. He had, therefore, entered upon his fifty-ninth year at the time of his death. He was remotely of German ancestry, his family having come from Germany about 200 years ago. At the age of twenty he commenced the study of medicine, and three years later went to Muscatine, Iowa. Trouble with his teeth and the difficulty he experienced in its alleviation turned his attention to dentistry. In Muscatine he became the junior partner of H. G. Hall, dentist of that place. After a couple of years Dr. Hall retired, and Dr. Kulp, after perfecting himself in a course of study at the Missouri Dental College, from which he graduated in 1866, practiced alone in Muscatine for the succeeding decade, going to Davenport in 1871. He was first associated with Dr. White, practiced long by himself, and in 1893 admitted his son, Dr. J. R. Kulp, to a partnership, under which their business has since been conducted.

It was through the efforts of Dr. Kulp that the Iowa Dental Association was organized in 1863. Since 1864 he has been a member of the American Dental Association. In 1867 he was called to the chair of operative dentistry in the Missouri Dental College, but illness in his family caused him to resign the position and return to Muscatine after a year. Upon the organization of the dental department of the Iowa State University, some fifteen years ago, he was chosen as the professor of operative dentistry and dental therapeutics. He will not be easily replaced upon the faculty of the university.

He was one of the principal supporters of the movement which resulted in the State regulation of the practice of dentistry in Iowa, and was one of the vice-presidents of the World's Columbian Dental Congress, one of the important meetings of 1893.

In New York City in 1861, Dr. Kulp and Miss Mary A. Jones, daughter of Rev. D. C. Jones, a well-known writer of church music, were married. To them were born six children, five of whom survive with their mother to mourn the loss of a loving husband and father. They are Mrs. Kate R. Cameron, Mrs. Lillian B. Downer, Dr. J. R. Kulp and Misses Zella May Kulp and Jeanne Cleaves Kulp. The first born, William, died in infancy.

The DENTAL DIGEST extends to the family of the deceased heartfelt sympathy in their hour of bereavement.

PRESCRIBE

LISTERINE

FOR PATIENTS WEARING

BRIDGE WORK OR DENTURES,

AND AS A GENERAL

Antiseptic and Prophylactic Wash

FOR THE MOUTH AND TEETH.

LISTERINE Is kept in stock by leading dealers in drugs everywhere, but in consequence of the prevalence of the SUBSTITUTION EVIL we earnestly request DENTAL PRACTITIONERS to

PRESCRIBE LISTERINE IN THE ORIGINAL PACKAGE.

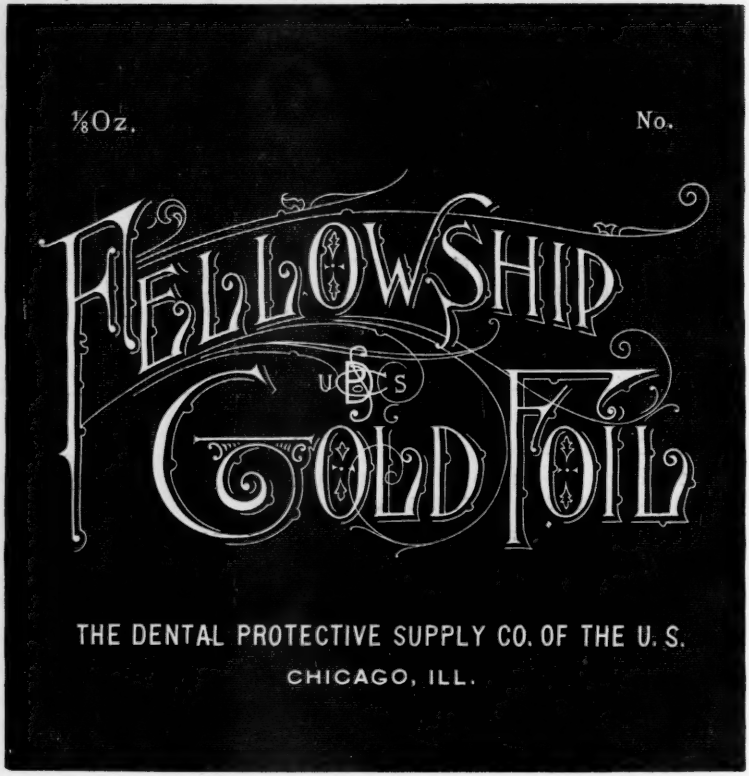
LISTERINE is invaluable for the care and preservation of the teeth. It promptly destroys all odors emanating from diseased gums and teeth, and imparts to the mucous surfaces a sense of cleanliness and purification; used after eating acid fruit, etc., it restores the alkaline condition of the mouth necessary for the welfare of the teeth, and employed systematically it will retard decay and tend to keep the teeth and gums in a healthy state. LISTERINE is valuable for the purification of artificial dentures and for the treatment of all soreness of the oral cavity resulting from their use. Patients wearing bridge work should constantly employ a LISTERINE wash of agreeable strength.

LISTERINE is used in various degrees of dilution; one to two ounces of LISTERINE to a pint of water will be found sufficiently powerful for the general care of the deciduous teeth of children, whilst a solution composed of one part LISTERINE and three parts water will be found of agreeable and thoroughly efficient strength for employment upon the brush and as a daily wash for free use in the oral cavity, in the care and preservation of the permanent teeth.

LITERATURE DESCRIPTIVE OF LISTERINE MAY BE HAD UPON APPLICATION TO THE MANUFACTURERS,

LAMBERT PHARMACAL COMPANY,
ST. LOUIS, MO.

FELLOWSHIP GOLD FOIL.



We can confidently recommend this Foil as being thoroughly reliable in every desirable quality. The demand for this make of gold is constantly increasing, and is the best guarantee of its uniform fine qualities.

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Rolled Gold Foil, Extra Cohesive, FROM NO. 20 UPWARD.

Price, per ⅛ oz.	$ 4 00
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Fellowship Gold Cylinders

Plain.....—Nos.	8	7	6	5	4	3	2	1	0
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FELLOWSHIP:

PLAIN CYLINDERS, SOFT AND COHESIVE.

CORRUGATED CYLINDERS, SOFT AND COHESIVE.

Price, per ⅛ oz	$ 4.00
" " ½ oz	15.00
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Each box of Plain Cylinders is labeled, showing the proportion of a sheet of Foil contained in each Cylinder as follows:

SMALL.

In No. 8, 40 Cylinders,=1 Sheet of No. 4 Foil.
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In No. 2, each Cylinder contains ½ Sheet of No. 4 Foil.
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The Dental Protective Supply Co.

CHICAGO, - - - - - ILLINOIS.

Have You Tried "Dual-Blade" Burs?

WE wish to call special attention to our new make of Burs.

THE arrangement of the blades, on which we have secured a *patent*, is on scientific principles, they are spiral in form, and are so arranged that they clear themselves.

THESE are the only burs that *shave* the dentine as is done with an excavator; all other burs *tear* or *grind* the tooth substance, thus producing more pain in the preparation of sensitive cavities.

OUR burs cut faster than any other make, and prepare the cavity without heating the tooth, and so are the best made.

WE are not prepared to supply the entire world, nor do we want the whole earth; but as soon as these burs are once tried, dentists in all parts of the world will prefer them.

Send and get a sample dozen and you will not use any other make now on the market.

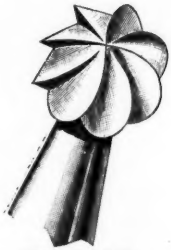
Price $ 2.00 per doz.
" 10.50 per half gross.

The Dental Protective Supply Co.

Chicago, Illinois

The "Dual-Blade" Bur

(SELF-CLEANSING.)



Patented Feb. 5, '95.

Patented Feb. 5, '95.

EXAMINE THE BLADES!

These twin blades entirely traverse the cutting surface of the Bur. The blades are stone-cut and brought to a fine keen edge. These Burs will be found to clear themselves thoroughly when in use, enabling the operator to rapidly cut—not *grind*—Dentine, and prepare cavities with the least possible pain to the patient. This is what we make Burs for—**ADAPTABILITY TO CUT SENSITIVE DENTINE**—and that's what they are used for! We wont enlarge upon their capabilities for drilling steel or glass, though they will do so, but for cutting sensitive Dentine with the minimum of pain to the patient, our "Dual-Blade" Burs have no equal.

WHEN ORDERING PLEASE STATE THE STYLE REQUIRED.

For Nos. 1 and 3. Right Angle Attachments.

For Universal Hand-Pieces.

For No. 2. Right Angle Attachment.

Kept in Stock in the following shapes and sizes:

ROUND.
WHEEL.
CONE.
INVERTED CONE.
PEAR.
BUD.
POINTED FISSURE.
SQUARE FISSURE.
OVAL.

UNIVERSAL AND RIGHT ANGLE BURS.

Sizes 0 to 7 Inclusive, $2.00 Per Doz.

Sizes 8 to 11 Inclusive
(Universal Burs Only) ..... **$2.75 Per Doz.**

QUANTITY PRICES.

Burs—Universal and Right Angle (doz. price, $2.00).... per half gross..$10.50
" " " " " (doz. price, $2.75) .... " " " .. 14.50

Send for sample dozen and enclose $2.00.

THE DENTAL PROTECTIVE SUPPLY CO.
CHICAGO, - - ILLINOIS.

"NO. 1" HANDPIECE

Patented Feb. 5, '95.

Designed and Manufactured by

The Dental Protective Supply Co.

A glance at the accompanying cuts illustrating this Hand piece will demonstrate the simplicity of its mechanism.

We have endeavored to design and place before the profession the most simple and durable Handpiece made.

The special features of the Handpiece are the double end chuck, the improved locking device, and long and efficient bearings.

Ample provision has been made for taking up all wear, and we guarantee that if the bearing surfaces are kept clean and well oiled, that this Handpiece will last for years, and prove the best that has ever been placed upon the market.

It is adapted to hold different forms of bit shanks (except cone journal) which can be inserted or taken out from the Handpiece while the engine is in motion; it is also designed so that it can be attached to any Dental Engine, and will fit all ordinary right angle attachments.

Owing to the entire absence of screws the Handpiece can be taken apart without the use of wrench or screw-driver, and is so constructed that escape of oil upon the hand of the operator,—an objectionable feature in some handpieces—is entirely avoided.

In ordering our No. 1 Handpiece, it is essential that you give all necessary particulars as to the style of your engine and attachments.

PRICE - - - - $10.00.

—ORDER DIRECT FROM—

THE DENTAL PROTECTIVE SUPPLY CO.

CHICAGO, ILL.

x.

"NO. 1" HANDPIECE.

DIRECTIONS FOR USE.

To Fasten Bit in Handpiece.

Push the sleeve H forward (which opens the split chuck) insert the Bit in spindle and draw back the sleeve H as far as it will go.

To Oil Handpiece.

Unscrew the milled nut A (giving it about 4 turns), take out B, and then remove the sheath. Lubricate at back bearing L and at coned portion of spindle for forward bearing, and also on sliding collar C. Screw sheath back on collar, replace B in its seat on H (being very careful to see that the small lug on B engages in the groove of C), and screw milled nut A back in place.

To Take Up Wear.

If the spindle becomes loose in its bearing a slight turn of the adjusting nut L (which has left hand thread) and jamb nut M will take up all wear.

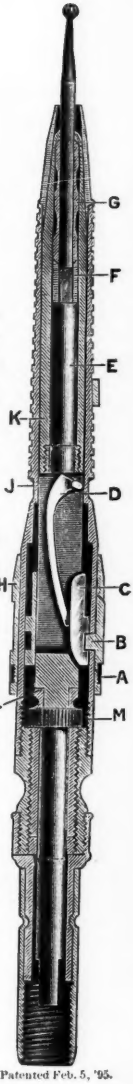
To Attach Handpiece to Any Cable Engine.

Unscrew the swivel on end of Handpiece which exposes the coupling, unscrew the latter from spindle, and solder cable in end with the two flats milled on.

Screw coupling back in place again tightly, to avoid unscrewing when running backward, attach swivel to flexible sheath and screw back in place.

Handpiece Repairs.

We would draw your special attention to the extra facilities which we possess for the efficient and prompt repairing of Handpieces. We have a staff of skillful workmen constantly engaged on this class of work, and Handpieces entrusted to us for repair will receive careful attention.



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THE DENTAL PROTECTIVE SUPPLY CO.

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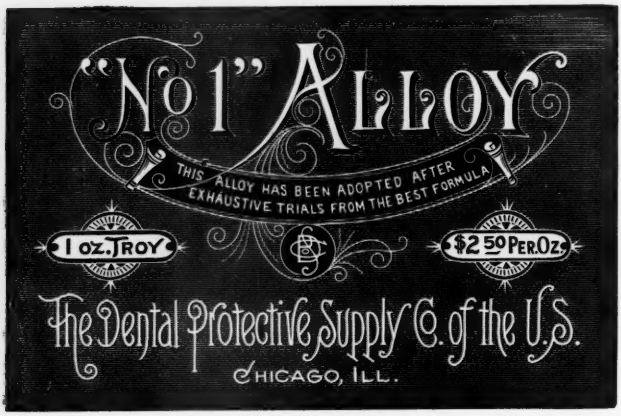
CHICAGO, ILLINOIS.


"No 1" ALLOY
THIS ALLOY HAS BEEN ADOPTED AFTER EXHAUSTIVE TRIALS FROM THE BEST FORMULA
1 OZ. TROY
$2.50 PER OZ.
The Dental Protective Supply Co. of the U.S.
CHICAGO, ILL.

No. 1 ALLOY.

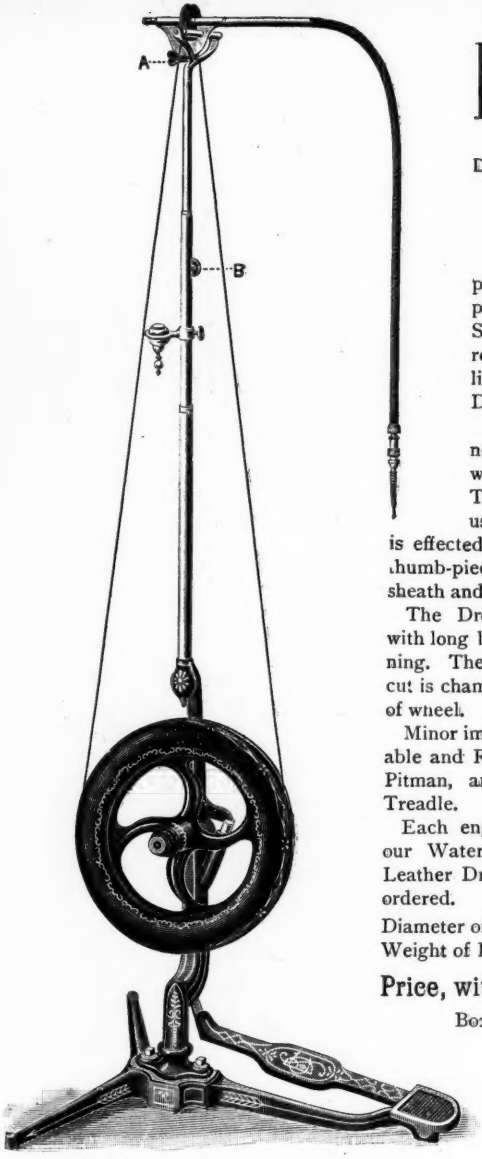
IN TWO GRITS—FINE AND MEDIUM

Price, per oz., Troy, $2.50; 2 ozs., $4.50; 5 ozs., $10.00.

This Alloy has been adopted after exhaustive trials from the very best formula. It **sets quickly,** has fine **edge strength,** is a **light grey color,** does **not discolor** in the mouth, and owing to the selection of the correct proportion of the metals it is composed of, neither **shrinks nor expands.**

DENTAL PROTECTIVE SUPPLY CO.

CHICAGO - - - - - - ILLINOIS.



Patent Applied For.

No. 1
Dental Engine.

DESIGNED AND MADE BY THE DENTAL PROTECTIVE SUPPLY CO.

This is a Cable Engine, supplied with our No. 1 Hand-piece (also made by the D. P. S. Co.), and can be confidently recommended as one of the lightest and easiest running Dental Engines made.

To raise the arm it is only necessary to give a slight upward toss to the hand-piece. The flexible arm when not in use should hang vertically. This is effected by a slight pressure on the thumb-piece at A, and prevents the sheath and cable from becoming set.

The Drop Pulley Head is supplied with long bearings, insuring steady running. The Hub, as will be seen in the cut is chambered so as to center weight of wheel.

Minor improvements are: An Adjustable and Rocking Upright, Spring Steel Pitman, and Rubber Heel-Pad for Treadle.

Each engine is supplied with one of our Water Cups, and with Twisted Leather Driving Belt, unless otherwise ordered.

Diameter of Driving Wheel....12 inches
Weight of Driving Wheel.....13 lbs

Price, with 14 Instruments, $43.

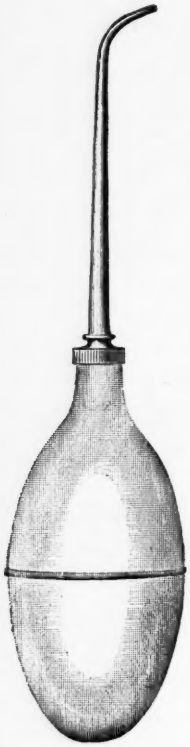
Boxing, 75 cents extra.

DENTAL
PROTECTIVE SUPPLY
COMPANY,
Chicago, - - - Illinois.

Dental Protective Supply Co.

CHICAGO, ILL.

FOIL CARRIERS AND OVAL BULB CHIP SYRINGE.



⅔ Actual Size.

PRICE .65

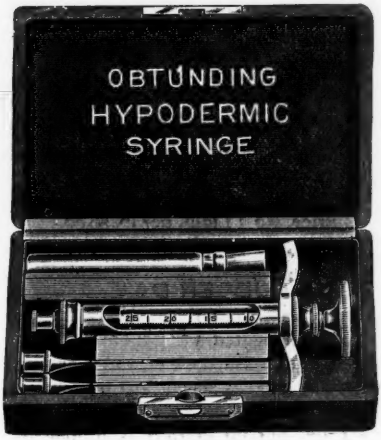
Full Size Cuts.

No. 1.
Small curved
nickel plated.
PRICE .65

No. 2.
Perry's
Annealing
nickel plated.
PRICE .75

No. 3.
College.
nickel plated.
PRICE $1.00

HYPODERMIC SYRINGE



PRICE **$2.50**

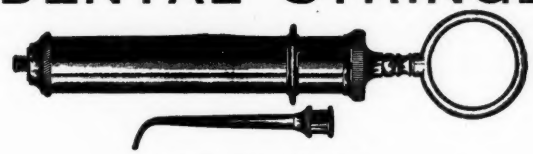
2-3 ACTUAL SIZE

FITTED WITH SOLID THUMBPIECE AND FINGER ARMS—STRONG GLASS BARREL AND EFFICIENT PACKING.

SUPPLIED WITH SEAMLESS STEEL TUBE REINFORCED NEEDLES.

SECURELY PACKED IN MOROCCO CASE LINED WITH LEATHER.

DENTAL SYRINGE



TOTAL LENGTH 6¾ INCHES.

A WELL MADE SERVICEABLE SYRINGE.
BRASS, NICKEL PLATED. PRICE $1.00.

THE DENTAL PROTECTIVE SUPPLY CO.

CHICAGO, ILLINOIS.

DENTAL RUBBERS.

Light red rubber, A, per lb.....$2.75
Dark red " B, " 2.75
Jet black, " 2.25

Made from pure Para Gum, no stronger is manufactured; retains a high polish

PINK RUBBER.

"English Rose Pink" imported, retains a fine polish and can be confidently recommended to uphold the high reputation that English Pink Rubbers have in this country.

Price, No 3 Light, per lb. $6.00.
No 4 Dark, per lb. $7.00.

RUBBER DAM.

No. 2 Smooth, and No. 2 Corrugated, } Price, per box,.....$1.50
Somewhat heavier, No. 3 Corrugated, }

This is a light colored Dam, washed clean, and is extra tough; it is cut up nto conveni ent sheets, 6 by 9 in., 25 sheets in a box, warranted to last perfect or 2 years.

Also a high class *Dam*, put up in *rolls* 15 ft. long by 7 in. wide, smooth or corrugated, price per roll,.....$1.25

EXCAVATORS.

We carry a large selection of these in all patterns and sizes. Blued Handles, price per doz.....$2.00

CHISELS, SCALERS.

Both in Assorted patterns.

File Cut Handles, Nickel Plated, price each.....$ .50
Cone socket Points, price each..... .35

NERVE EXTRACTORS.

Barbed; tempered by a new process. Price per doz.....$ .50

CONTINUOUS GUM BODY AND ENAMEL, ROSE'S.

A low fusing body with practically no shrinkage, suitable for English or American Teeth and can be lined with vulcanite or platina.
Body or Enamel. Per box, each.....$2 00

PLUGGERS AND PLUGGER POINTS.

We can Supply these in any of the well known sets either for electric mallet or hand, with serrations 100 or 200 to the inch. Please specify when ordering. Prices on application.

THE DENTAL PROTECTIVE SUPPLY CO.

Chicago, Ill.